



Junos[®] Software

Routing Protocols and Policies Command Reference

Release

10.4



Published: 2010-10-11

Juniper Networks, Inc.
1194 North Mathilda Avenue
Sunnyvale, California 94089
USA
408-745-2000
www.juniper.net

This product includes the Envoy SNMP Engine, developed by Epilogue Technology, an Integrated Systems Company. Copyright © 1986-1997, Epilogue Technology Corporation. All rights reserved. This program and its documentation were developed at private expense, and no part of them is in the public domain.

This product includes memory allocation software developed by Mark Moraes, copyright © 1988, 1989, 1993, University of Toronto.

This product includes FreeBSD software developed by the University of California, Berkeley, and its contributors. All of the documentation and software included in the 4.4BSD and 4.4BSD-Lite Releases is copyrighted by the Regents of the University of California. Copyright © 1979, 1980, 1983, 1986, 1988, 1989, 1991, 1992, 1993, 1994. The Regents of the University of California. All rights reserved.

GateD software copyright © 1995, the Regents of the University. All rights reserved. Gate Daemon was originated and developed through release 3.0 by Cornell University and its collaborators. Gated is based on Kirton's EGP, UC Berkeley's routing daemon (routed), and DCN's HELLO routing protocol. Development of Gated has been supported in part by the National Science Foundation. Portions of the GateD software copyright © 1988, Regents of the University of California. All rights reserved. Portions of the GateD software copyright © 1991, D. L. S. Associates.

This product includes software developed by Maker Communications, Inc., copyright © 1996, 1997, Maker Communications, Inc.

Juniper Networks, Junos, Steel-Belted Radius, NetScreen, and ScreenOS are registered trademarks of Juniper Networks, Inc. in the United States and other countries. The Juniper Networks Logo, the Junos logo, and JunosE are trademarks of Juniper Networks, Inc. All other trademarks, service marks, registered trademarks, or registered service marks are the property of their respective owners.

Juniper Networks assumes no responsibility for any inaccuracies in this document. Juniper Networks reserves the right to change, modify, transfer, or otherwise revise this publication without notice.

Products made or sold by Juniper Networks or components thereof might be covered by one or more of the following patents that are owned by or licensed to Juniper Networks: U.S. Patent Nos. 5,473,599, 5,905,725, 5,909,440, 6,192,051, 6,333,650, 6,359,479, 6,406,312, 6,429,706, 6,459,579, 6,493,347, 6,538,518, 6,538,899, 6,552,918, 6,567,902, 6,578,186, and 6,590,785.

Junos® Software Routing Protocols and Policies Command Reference

Release 10.4

Copyright © 2010, Juniper Networks, Inc.

All rights reserved. Printed in USA.

Writing: Philomena Dolla, Mark Barnard, Andrea Couvrey, Walter Goralski, Fran Singer, Albert Statti, Ines Salazar, Roy Spencer, and Rekha J

Editing: Stella Hackell, Nancy Kurahashi, Sonia Saruba, Joanne McClintock

Cover Design: Edmonds Design

Revision History

October 2010—R1 Junos 10.4

The information in this document is current as of the date listed in the revision history.

YEAR 2000 NOTICE

Juniper Networks hardware and software products are Year 2000 compliant. The Junos OS has no known time-related limitations through the year 2038. However, the NTP application is known to have some difficulty in the year 2036.

END USER LICENSE AGREEMENT

READ THIS END USER LICENSE AGREEMENT ("AGREEMENT") BEFORE DOWNLOADING, INSTALLING, OR USING THE SOFTWARE. BY DOWNLOADING, INSTALLING, OR USING THE SOFTWARE OR OTHERWISE EXPRESSING YOUR AGREEMENT TO THE TERMS CONTAINED HEREIN, YOU (AS CUSTOMER OR IF YOU ARE NOT THE CUSTOMER, AS A REPRESENTATIVE/AGENT AUTHORIZED TO BIND THE CUSTOMER) CONSENT TO BE BOUND BY THIS AGREEMENT. IF YOU DO NOT OR CANNOT AGREE TO THE TERMS CONTAINED HEREIN, THEN (A) DO NOT DOWNLOAD, INSTALL, OR USE THE SOFTWARE, AND (B) YOU MAY CONTACT JUNIPER NETWORKS REGARDING LICENSE TERMS.

1. **The Parties.** The parties to this Agreement are (i) Juniper Networks, Inc. (if the Customer's principal office is located in the Americas) or Juniper Networks (Cayman) Limited (if the Customer's principal office is located outside the Americas) (such applicable entity being referred to herein as "Juniper"), and (ii) the person or organization that originally purchased from Juniper or an authorized Juniper reseller the applicable license(s) for use of the Software ("Customer") (collectively, the "Parties").

2. **The Software.** In this Agreement, "Software" means the program modules and features of the Juniper or Juniper-supplied software, for which Customer has paid the applicable license or support fees to Juniper or an authorized Juniper reseller, or which was embedded by Juniper in equipment which Customer purchased from Juniper or an authorized Juniper reseller. "Software" also includes updates, upgrades and new releases of such software. "Embedded Software" means Software which Juniper has embedded in or loaded onto the Juniper equipment and any updates, upgrades, additions or replacements which are subsequently embedded in or loaded onto the equipment.

3. **License Grant.** Subject to payment of the applicable fees and the limitations and restrictions set forth herein, Juniper grants to Customer a non-exclusive and non-transferable license, without right to sublicense, to use the Software, in executable form only, subject to the following use restrictions:

- a. Customer shall use Embedded Software solely as embedded in, and for execution on, Juniper equipment originally purchased by Customer from Juniper or an authorized Juniper reseller.
- b. Customer shall use the Software on a single hardware chassis having a single processing unit, or as many chassis or processing units for which Customer has paid the applicable license fees; provided, however, with respect to the Steel-Belted Radius or Odyssey Access Client software only, Customer shall use such Software on a single computer containing a single physical random access memory space and containing any number of processors. Use of the Steel-Belted Radius or IMS AAA software on multiple computers or virtual machines (e.g., Solaris zones) requires multiple licenses, regardless of whether such computers or virtualizations are physically contained on a single chassis.
- c. Product purchase documents, paper or electronic user documentation, and/or the particular licenses purchased by Customer may specify limits to Customer's use of the Software. Such limits may restrict use to a maximum number of seats, registered endpoints, concurrent users, sessions, calls, connections, subscribers, clusters, nodes, realms, devices, links, ports or transactions, or require the purchase of separate licenses to use particular features, functionalities, services, applications, operations, or capabilities, or provide throughput, performance, configuration, bandwidth, interface, processing, temporal, or geographical limits. In addition, such limits may restrict the use of the Software to managing certain kinds of networks or require the Software to be used only in conjunction with other specific Software. Customer's use of the Software shall be subject to all such limitations and purchase of all applicable licenses.
- d. For any trial copy of the Software, Customer's right to use the Software expires 30 days after download, installation or use of the Software. Customer may operate the Software after the 30-day trial period only if Customer pays for a license to do so. Customer may not extend or create an additional trial period by re-installing the Software after the 30-day trial period.
- e. The Global Enterprise Edition of the Steel-Belted Radius software may be used by Customer only to manage access to Customer's enterprise network. Specifically, service provider customers are expressly prohibited from using the Global Enterprise Edition of the Steel-Belted Radius software to support any commercial network access services.

The foregoing license is not transferable or assignable by Customer. No license is granted herein to any user who did not originally purchase the applicable license(s) for the Software from Juniper or an authorized Juniper reseller.

4. **Use Prohibitions.** Notwithstanding the foregoing, the license provided herein does not permit the Customer to, and Customer agrees not to and shall not: (a) modify, unbundle, reverse engineer, or create derivative works based on the Software; (b) make unauthorized copies of the Software (except as necessary for backup purposes); (c) rent, sell, transfer, or grant any rights in and to any copy of the Software, in any form, to any third party; (d) remove any proprietary notices, labels, or marks on or in any copy of the Software or any product in which the Software is embedded; (e) distribute any copy of the Software to any third party, including as may be embedded in Juniper equipment sold in the secondhand market; (f) use any 'locked' or key-restricted feature, function, service, application, operation, or capability without first purchasing the applicable license(s) and obtaining a valid key from Juniper, even if such feature, function, service, application, operation, or capability is enabled without a key; (g) distribute any key for the Software provided by Juniper to any third party; (h) use the

Software in any manner that extends or is broader than the uses purchased by Customer from Juniper or an authorized Juniper reseller; (i) use Embedded Software on non-Juniper equipment; (j) use Embedded Software (or make it available for use) on Juniper equipment that the Customer did not originally purchase from Juniper or an authorized Juniper reseller; (k) disclose the results of testing or benchmarking of the Software to any third party without the prior written consent of Juniper; or (l) use the Software in any manner other than as expressly provided herein.

5. **Audit.** Customer shall maintain accurate records as necessary to verify compliance with this Agreement. Upon request by Juniper, Customer shall furnish such records to Juniper and certify its compliance with this Agreement.

6. **Confidentiality.** The Parties agree that aspects of the Software and associated documentation are the confidential property of Juniper. As such, Customer shall exercise all reasonable commercial efforts to maintain the Software and associated documentation in confidence, which at a minimum includes restricting access to the Software to Customer employees and contractors having a need to use the Software for Customer's internal business purposes.

7. **Ownership.** Juniper and Juniper's licensors, respectively, retain ownership of all right, title, and interest (including copyright) in and to the Software, associated documentation, and all copies of the Software. Nothing in this Agreement constitutes a transfer or conveyance of any right, title, or interest in the Software or associated documentation, or a sale of the Software, associated documentation, or copies of the Software.

8. **Warranty, Limitation of Liability, Disclaimer of Warranty.** The warranty applicable to the Software shall be as set forth in the warranty statement that accompanies the Software (the "Warranty Statement"). Nothing in this Agreement shall give rise to any obligation to support the Software. Support services may be purchased separately. Any such support shall be governed by a separate, written support services agreement. TO THE MAXIMUM EXTENT PERMITTED BY LAW, JUNIPER SHALL NOT BE LIABLE FOR ANY LOST PROFITS, LOSS OF DATA, OR COSTS OR PROCUREMENT OF SUBSTITUTE GOODS OR SERVICES, OR FOR ANY SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES ARISING OUT OF THIS AGREEMENT, THE SOFTWARE, OR ANY JUNIPER OR JUNIPER-SUPPLIED SOFTWARE. IN NO EVENT SHALL JUNIPER BE LIABLE FOR DAMAGES ARISING FROM UNAUTHORIZED OR IMPROPER USE OF ANY JUNIPER OR JUNIPER-SUPPLIED SOFTWARE. EXCEPT AS EXPRESSLY PROVIDED IN THE WARRANTY STATEMENT TO THE EXTENT PERMITTED BY LAW, JUNIPER DISCLAIMS ANY AND ALL WARRANTIES IN AND TO THE SOFTWARE (WHETHER EXPRESS, IMPLIED, STATUTORY, OR OTHERWISE), INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IN NO EVENT DOES JUNIPER WARRANT THAT THE SOFTWARE, OR ANY EQUIPMENT OR NETWORK RUNNING THE SOFTWARE, WILL OPERATE WITHOUT ERROR OR INTERRUPTION, OR WILL BE FREE OF VULNERABILITY TO INTRUSION OR ATTACK. In no event shall Juniper's or its suppliers' or licensors' liability to Customer, whether in contract, tort (including negligence), breach of warranty, or otherwise, exceed the price paid by Customer for the Software that gave rise to the claim, or if the Software is embedded in another Juniper product, the price paid by Customer for such other product. Customer acknowledges and agrees that Juniper has set its prices and entered into this Agreement in reliance upon the disclaimers of warranty and the limitations of liability set forth herein, that the same reflect an allocation of risk between the Parties (including the risk that a contract remedy may fail of its essential purpose and cause consequential loss), and that the same form an essential basis of the bargain between the Parties.

9. **Termination.** Any breach of this Agreement or failure by Customer to pay any applicable fees due shall result in automatic termination of the license granted herein. Upon such termination, Customer shall destroy or return to Juniper all copies of the Software and related documentation in Customer's possession or control.

10. **Taxes.** All license fees payable under this agreement are exclusive of tax. Customer shall be responsible for paying Taxes arising from the purchase of the license, or importation or use of the Software. If applicable, valid exemption documentation for each taxing jurisdiction shall be provided to Juniper prior to invoicing, and Customer shall promptly notify Juniper if their exemption is revoked or modified. All payments made by Customer shall be net of any applicable withholding tax. Customer will provide reasonable assistance to Juniper in connection with such withholding taxes by promptly: providing Juniper with valid tax receipts and other required documentation showing Customer's payment of any withholding taxes; completing appropriate applications that would reduce the amount of withholding tax to be paid; and notifying and assisting Juniper in any audit or tax proceeding related to transactions hereunder. Customer shall comply with all applicable tax laws and regulations, and Customer will promptly pay or reimburse Juniper for all costs and damages related to any liability incurred by Juniper as a result of Customer's non-compliance or delay with its responsibilities herein. Customer's obligations under this Section shall survive termination or expiration of this Agreement.

11. **Export.** Customer agrees to comply with all applicable export laws and restrictions and regulations of any United States and any applicable foreign agency or authority, and not to export or re-export the Software or any direct product thereof in violation of any such restrictions, laws or regulations, or without all necessary approvals. Customer shall be liable for any such violations. The version of the Software supplied to Customer may contain encryption or other capabilities restricting Customer's ability to export the Software without an export license.

12. **Commercial Computer Software.** The Software is "commercial computer software" and is provided with restricted rights. Use, duplication, or disclosure by the United States government is subject to restrictions set forth in this Agreement and as provided in DFARS 227.7201 through 227.7202-4, FAR 12.212, FAR 27.405(b)(2), FAR 52.227-19, or FAR 52.227-14 (ALT III) as applicable.

13. **Interface Information.** To the extent required by applicable law, and at Customer's written request, Juniper shall provide Customer with the interface information needed to achieve interoperability between the Software and another independently created program, on payment of applicable fee, if any. Customer shall observe strict obligations of confidentiality with respect to such information and shall use such information in compliance with any applicable terms and conditions upon which Juniper makes such information available.

14. **Third Party Software.** Any licensor of Juniper whose software is embedded in the Software and any supplier of Juniper whose products or technology are embedded in (or services are accessed by) the Software shall be a third party beneficiary with respect to this Agreement, and such licensor or vendor shall have the right to enforce this Agreement in its own name as if it were Juniper. In addition, certain third party software may be provided with the Software and is subject to the accompanying license(s), if any, of its respective owner(s). To the extent portions of the Software are distributed under and subject to open source licenses obligating Juniper to make the source code for such portions publicly available (such as the GNU General Public License ("GPL") or the GNU Library General Public License ("LGPL")), Juniper will make such source code portions (including Juniper modifications, as appropriate) available upon request for a period of up to three years from the date of distribution. Such request can be made in writing to Juniper Networks, Inc., 1194 N. Mathilda Ave., Sunnyvale, CA 94089, ATTN: General Counsel. You may obtain a copy of the GPL at <http://www.gnu.org/licenses/gpl.html>, and a copy of the LGPL at <http://www.gnu.org/licenses/lgpl.html>.

15. **Miscellaneous.** This Agreement shall be governed by the laws of the State of California without reference to its conflicts of laws principles. The provisions of the U.N. Convention for the International Sale of Goods shall not apply to this Agreement. For any disputes arising under this Agreement, the Parties hereby consent to the personal and exclusive jurisdiction of, and venue in, the state and federal courts within Santa Clara County, California. This Agreement constitutes the entire and sole agreement between Juniper and the Customer with respect to the Software, and supersedes all prior and contemporaneous agreements relating to the Software, whether oral or written (including any inconsistent terms contained in a purchase order), except that the terms of a separate written agreement executed by an authorized Juniper representative and Customer shall govern to the extent such terms are inconsistent or conflict with terms contained herein. No modification to this Agreement nor any waiver of any rights hereunder shall be effective unless expressly assented to in writing by the party to be charged. If any portion of this Agreement is held invalid, the Parties agree that such invalidity shall not affect the validity of the remainder of this Agreement. This Agreement and associated documentation has been written in the English language, and the Parties agree that the English version will govern. (For Canada: Les parties aux présentes confirment leur volonté que cette convention de même que tous les documents y compris tout avis qui s'y rattache, soient rédigés en langue anglaise. (Translation: The parties confirm that this Agreement and all related documentation is and will be in the English language)).

Abbreviated Table of Contents

	About This Guide	xvii
Part 1	Protocols	
Chapter 1	ANCP Operational Mode Commands	3
Chapter 2	BFD Operational Mode Commands	15
Chapter 3	BGP Operational Mode Commands	25
Chapter 4	ES-IS Operational Mode Commands	61
Chapter 5	IP Multicast Operational Mode Commands	71
Chapter 6	IPv6 Operational Mode Commands	229
Chapter 7	IS-IS Operational Mode Commands	237
Chapter 8	LLDP Operational Mode Commands	285
Chapter 9	MVRP Operational Mode Commands	301
Chapter 10	OSPF Operational Mode Commands	313
Chapter 11	Protocol-Independent Routing Operational Mode Commands	381
Chapter 12	RIP Operational Mode Commands	557
Chapter 13	RIPng Operational Mode Commands	567
Part 2	Policy Framework	
Chapter 14	Firewall Filter Operational Mode Commands	577
Chapter 15	Forwarding Operational Mode Commands	589
Chapter 16	Routing Policy Operational Mode Commands	607
Part 3	MPLS	
Chapter 17	LDP Operational Mode Commands	617
Chapter 18	MPLS Operational Mode Commands	645
Chapter 19	RSVP Operational Mode Commands	695
Part 4	Layer 2 Bridging and Switching Operational Mode Commands	
Chapter 20	Layer 2 Bridging and Switching Operational Mode Commands	725
Chapter 21	Spanning Tree Operational Mode Commands	751
Part 5	VPNs	
Chapter 22	VPN Operational Mode Commands	771

Part 6

Index

Index	819
Index of Statements and Commands	829

Table of Contents

	About This Guide	xvii
	Junos Documentation and Release Notes	xvii
	Objectives	xviii
	Audience	xviii
	Supported Platforms	xix
	Using the Indexes	xix
	Documentation Conventions	xix
	Documentation Feedback	xxi
	Requesting Technical Support	xxi
	Self-Help Online Tools and Resources	xxii
	Opening a Case with JTAC	xxii
Part 1	Protocols	
Chapter 1	ANCP Operational Mode Commands	3
	clear ancp neighbor	4
	show ancp cos	5
	show ancp neighbor	8
	show ancp subscriber	10
Chapter 2	BFD Operational Mode Commands	15
	clear bfd adaptation	16
	clear bfd session	17
	show bfd session	18
Chapter 3	BGP Operational Mode Commands	25
	clear bgp damping	26
	clear bgp neighbor	27
	clear bgp table	29
	show bgp bmp	30
	show bgp group	31
	show bgp group traffic-statistics	37
	show bgp neighbor	39
	show bgp replication	52
	show bgp summary	54
	show policy damping	58
Chapter 4	ES-IS Operational Mode Commands	61
	clear esis adjacency	62
	clear esis statistics	63
	show esis adjacency	64
	show esis interface	66

Chapter 5

show esis statistics	68
IP Multicast Operational Mode Commands	71
clear igmp membership	75
clear igmp snooping membership	79
clear igmp snooping statistics	80
clear igmp statistics	81
clear mld membership	83
clear mld statistics	84
clear msdp cache	85
clear msdp statistics	86
clear multicast bandwidth-admission	87
clear multicast scope	89
clear multicast sessions	90
clear multicast snooping statistics	91
clear multicast statistics	92
clear pgm negative-acknowledgments	93
clear pgm source-path-messages	94
clear pgm statistics	95
clear pim join	96
clear pim join-distribution	97
clear pim register	99
clear pim statistics	100
request pim multicast-tunnel rebalance	102
show dvmrp interfaces	103
show dvmrp neighbors	105
show dvmrp prefix	107
show dvmrp prunes	109
show igmp group	111
show igmp interface	115
show igmp snooping interface	118
show igmp snooping membership	121
show igmp snooping statistics	124
show igmp statistics	127
show mld group	130
show mld interface	134
show mld statistics	137
show msdp	140
show msdp source	142
show msdp source-active	144
show msdp statistics	146
show multicast flow-map	148
show multicast interface	150
show multicast mrinfo	152
show multicast next-hops	154
show multicast pim-to-igmp-proxy	156
show multicast pim-to-mld-proxy	158
show multicast route	160
show multicast rpf	164

	show multicast scope	168
	show multicast sessions	170
	show multicast snooping route	172
	show multicast snooping statistics	175
	show multicast statistics	178
	show multicast usage	181
	show pgm negative-acknowledgments	184
	show pgm source-path-messages	186
	show pgm statistics	187
	show pim bootstrap	190
	show pim interfaces	192
	show pim join	195
	show pim mdt	201
	show pim mvpn	205
	show pim neighbors	206
	show pim rps	210
	show pim source	215
	show pim statistics	217
	show sap listen	226
	test msdp	227
Chapter 6	IPv6 Operational Mode Commands	229
	clear ipv6 neighbors	230
	clear ipv6 router-advertisement	231
	show ipv6 neighbors	232
	show ipv6 router-advertisement	234
Chapter 7	IS-IS Operational Mode Commands	237
	clear isis adjacency	239
	clear isis database	241
	clear isis overload	243
	clear isis statistics	245
	show isis adjacency	247
	show isis authentication	251
	show isis backup coverage	253
	show isis backup label-switched-path	255
	show isis backup spf results	257
	show isis database	260
	show isis hostname	267
	show isis interface	268
	show isis overview	272
	show isis route	275
	show isis spf	278
	show isis statistics	283
Chapter 8	LLDP Operational Mode Commands	285
	clear lldp neighbor	286
	clear lldp statistics	287
	show lldp	288
	show lldp local-information	290

	show lldp neighbors	292
	show lldp remote-global-statistics	296
	show lldp statistics	298
Chapter 9	MVRP Operational Mode Commands	301
	show mvrp	302
	show mvrp applicant-state	304
	show mvrp dynamic-vlan-memberships	306
	show mvrp interface	307
	show mvrp registration-state	308
	show mvrp statistics	310
Chapter 10	OSPF Operational Mode Commands	313
	clear (ospf ospf3) database	315
	clear (ospf ospf3) database-protection	318
	clear (ospf ospf3) io-statistics	319
	clear (ospf ospf3) neighbor	320
	clear ospf overload	322
	clear (ospf ospf3) statistics	323
	show (ospf ospf3) backup coverage	325
	show (ospf ospf3) backup lsp	327
	show (ospf ospf3) backup spf	329
	show ospf database	336
	show ospf3 database	344
	show (ospf ospf3) interface	354
	show (ospf ospf3) io-statistics	359
	show (ospf ospf3) log	360
	show (ospf ospf3) neighbor	363
	show (ospf ospf3) overview	369
	show (ospf ospf3) route	373
	show (ospf ospf3) statistics	378
Chapter 11	Protocol-Independent Routing Operational Mode Commands	381
	show as-path	384
	show as-path domain	388
	show as-path summary	390
	show route	391
	show route active-path	395
	show route advertising-protocol	400
	show route all	404
	show route aspath-regex	406
	show route best	408
	show route brief	412
	show route ccc	414
	show route community	415
	show route community-name	417
	show route damping	419
	show route detail	424
	show route exact	439
	show route export	442

	show route export vrf-target	444
	show route extensive	446
	show route flow validation	459
	show route forwarding-table	461
	show route hidden	472
	show route inactive-path	475
	show route inactive-prefix	478
	show route instance	480
	show route label	487
	show route label-switched-path	489
	show route martians	491
	show route next-hop	493
	show route no-community	499
	show route output	502
	show route protocol	506
	show route range	515
	show route receive-protocol	519
	show route resolution	526
	show route snooping	529
	show route source-gateway	537
	show route summary	543
	show route table	545
	show route terse	553
Chapter 12	RIP Operational Mode Commands	557
	clear rip general-statistics	558
	clear rip statistics	559
	show rip general-statistics	560
	show rip neighbor	561
	show rip statistics	563
Chapter 13	RIPng Operational Mode Commands	567
	clear ripng general-statistics	568
	clear ripng statistics	569
	show ripng general-statistics	570
	show ripng neighbor	571
	show ripng statistics	573
Part 2	Policy Framework	
Chapter 14	Firewall Filter Operational Mode Commands	577
	clear firewall	578
	show firewall	579
	show firewall filter version	582
	show firewall log	583
	show firewall prefix-action-stats	585
	show policer	586

Chapter 15	Forwarding Operational Mode Commands	589
	clear dhcp relay binding	590
	clear dhcp relay statistics	593
	clear helper statistics	596
	show dhcp relay binding	598
	show dhcp relay statistics	602
	show helper statistics	605
Chapter 16	Routing Policy Operational Mode Commands	607
	show policy	608
	show policy conditions	611
	test policy	613
Part 3	MPLS	
Chapter 17	LDP Operational Mode Commands	617
	clear ldp neighbor	619
	clear ldp session	620
	clear ldp statistics	621
	show ldp database	622
	show ldp fec-filters	626
	show ldp interface	627
	show ldp neighbor	629
	show ldp path	631
	show ldp route	633
	show ldp session	635
	show ldp statistics	639
	show ldp traffic-statistics	642
Chapter 18	MPLS Operational Mode Commands	645
	clear mpls lsp	647
	request mpls lsp adjust-autobandwidth	649
	show connections	650
	show link-management	653
	show link-management peer	657
	show link-management routing	659
	show link-management statistics	662
	show link-management te-link	664
	show mpls admin-groups	666
	show mpls call-admission-control	667
	show mpls cspf	669
	show mpls diffserv-te	671
	show mpls interface	673
	show mpls lsp	674
	show mpls path	684
	show mpls static-lsp	685
	show ted database	688
	show ted link	692
	show ted protocol	694

Chapter 19	RSVP Operational Mode Commands	695
	clear rsvp session	696
	clear rsvp statistics	698
	show rsvp interface	699
	show rsvp neighbor	704
	show rsvp session	709
	show rsvp statistics	717
	show rsvp version	721
Part 4	Layer 2 Bridging and Switching Operational Mode Commands	
Chapter 20	Layer 2 Bridging and Switching Operational Mode Commands	725
	clear bridge mac-table	726
	clear error bpdu	727
	clear error mac-rewrite	728
	show bridge domain	729
	show bridge flood	731
	show bridge mac-table	738
	show bridge statistics	741
	show l2-learning global-information	744
	show l2-learning global-mac-count	745
	show l2-learning instance	746
	show l2-learning interface	748
	show mac-rewrite interface	750
Chapter 21	Spanning Tree Operational Mode Commands	751
	clear spanning-tree protocol-migration	752
	clear spanning-tree statistics	753
	show spanning-tree bridge	754
	show spanning-tree interface	759
	show spanning-tree mstp configuration	764
	show spanning-tree statistics	766
Part 5	VPNs	
Chapter 22	VPN Operational Mode Commands	771
	clear vpls mac-address	773
	clear vpls mac-table	774
	request l2circuit-switchover	775
	show dynamic-tunnels database	776
	show ingress-replication mvpn	778
	show l2circuit connections	779
	show l2vpn connections	784
	show mvpn c-multicast	788
	show mvpn instance	790
	show mvpn neighbor	793
	show vpls connections	796
	show vpls flood event-queue	804
	show vpls flood instance	806
	show vpls flood route	808

show vpls mac-table	810
show vpls statistics	814

Part 6

Index

Index	819
Index of Statements and Commands	829

About This Guide

This preface provides the following guidelines for using the *Junos[®] Software Routing Protocols and Policies Command Reference*:

- Junos Documentation and Release Notes on page xvii
- Objectives on page xviii
- Audience on page xviii
- Supported Platforms on page xix
- Using the Indexes on page xix
- Documentation Conventions on page xix
- Documentation Feedback on page xxi
- Requesting Technical Support on page xxi

Junos Documentation and Release Notes

For a list of related Junos documentation, see
<http://www.juniper.net/techpubs/software/junos/>.

If the information in the latest release notes differs from the information in the documentation, follow the *Junos Release Notes*.

To obtain the most current version of all Juniper Networks[®] technical documentation, see the product documentation page on the Juniper Networks website at
<http://www.juniper.net/techpubs/>.

Juniper Networks supports a technical book program to publish books by Juniper Networks engineers and subject matter experts with book publishers around the world. These books go beyond the technical documentation to explore the nuances of network architecture, deployment, and administration using the Junos operating system (Junos OS) and Juniper Networks devices. In addition, the Juniper Networks Technical Library, published in conjunction with O'Reilly Media, explores improving network security, reliability, and availability using Junos OS configuration techniques. All the books are for sale at technical bookstores and book outlets around the world. The current list can be viewed at <http://www.juniper.net/books>.

Objectives

This guide provides descriptions of the Juniper Networks Junos OS commands that you use to monitor and troubleshoot routing protocols, protocol-independent features, and policies, including firewall filters, forwarding options, and routing policies.

For additional commands, see these guides:

- *Junos OS System Basics and Services Command Reference*
- *Junos OS Interfaces Command Reference*



NOTE: For additional information about Junos OS—either corrections to or information that might have been omitted from this guide—see the software release notes at <http://www.juniper.net/>.

For information about configuration statements and guidelines related to the commands described in this reference, see the following configuration guides:

- *Junos OS Routing Protocols Configuration Guide*—Includes configuration statements and guidelines for routing protocols and protocol-independent features.
- *Junos OS Policy Framework Configuration Guide*—Includes configuration statements and guidelines for policies, including firewall filters, forwarding options, and routing policies.
- *Junos OS MPLS Applications Configuration Guide*—Includes configuration statements and guidelines for Multiprotocol Label Switching (MPLS) traffic engineering.
- *Junos OS VPNs Configuration Guide*—Includes configuration statements and guidelines for Layer 2 and Layer 3 virtual private networks (VPNs), virtual private LAN service (VPLS), and Layer 2 circuits.

For information about MPLS-related tasks performed by network operations center (NOC) personnel, see the *Junos MPLS Network Operations Guide*.

Audience

This guide is designed for network administrators who are configuring and monitoring a Juniper Networks M Series, MX Series, T Series, EX Series, or J Series router or switch.

To use this guide, you need a broad understanding of networks in general, the Internet in particular, networking principles, and network configuration. You must also be familiar with one or more of the following Internet routing protocols:

- Border Gateway Protocol (BGP)
- Distance Vector Multicast Routing Protocol (DVMRP)
- Intermediate System-to-Intermediate System (IS-IS)
- Internet Control Message Protocol (ICMP) router discovery

- Internet Group Management Protocol (IGMP)
- Multiprotocol Label Switching (MPLS)
- Open Shortest Path First (OSPF)
- Protocol-Independent Multicast (PIM)
- Resource Reservation Protocol (RSVP)
- Routing Information Protocol (RIP)
- Simple Network Management Protocol (SNMP)

Personnel operating the equipment must be trained and competent; must not conduct themselves in a careless, willfully negligent, or hostile manner; and must abide by the instructions provided by the documentation.

Supported Platforms

For the features described in this manual, Junos OS currently supports the following platforms:

- J Series
- M Series
- MX Series
- T Series
- EX Series

Using the Indexes

This reference contains two indexes: a standard index with topic entries, and an index of commands.

Documentation Conventions

Table 1 on page xx defines notice icons used in this guide.

Table 1: Notice Icons

Icon	Meaning	Description
	Informational note	Indicates important features or instructions.
	Caution	Indicates a situation that might result in loss of data or hardware damage.
	Warning	Alerts you to the risk of personal injury or death.
	Laser warning	Alerts you to the risk of personal injury from a laser.

Table 2 on page xx defines the text and syntax conventions used in this guide.

Table 2: Text and Syntax Conventions

Convention	Description	Examples
Bold text like this	Represents text that you type.	To enter configuration mode, type the configure command: user@host> configure
Fixed-width text like this	Represents output that appears on the terminal screen.	user@host> show chassis alarms No alarms currently active
<i>Italic text like this</i>	<ul style="list-style-type: none"> Introduces important new terms. Identifies book names. Identifies RFC and Internet draft titles. 	<ul style="list-style-type: none"> A policy <i>term</i> is a named structure that defines match conditions and actions. <i>Junos System Basics Configuration Guide</i> RFC1997, <i>BGP Communities Attribute</i>
<i>Italic text like this</i>	Represents variables (options for which you substitute a value) in commands or configuration statements.	Configure the machine's domain name: [edit] root@# set system domain-name <i>domain-name</i>
Text like this	Represents names of configuration statements, commands, files, and directories; IP addresses; configuration hierarchy levels; or labels on routing platform components.	<ul style="list-style-type: none"> To configure a stub area, include the stub statement at the [edit protocols ospf area area-id] hierarchy level. The console port is labeled CONSOLE.
< > (angle brackets)	Enclose optional keywords or variables.	stub <default-metric <i>metric</i> >;

Table 2: Text and Syntax Conventions (*continued*)

Convention	Description	Examples
(pipe symbol)	Indicates a choice between the mutually exclusive keywords or variables on either side of the symbol. The set of choices is often enclosed in parentheses for clarity.	broadcast multicast (<i>string1</i> <i>string2</i> <i>string3</i>)
# (pound sign)	Indicates a comment specified on the same line as the configuration statement to which it applies.	rsvp { # Required for dynamic MPLS only
[] (square brackets)	Enclose a variable for which you can substitute one or more values.	community name members [community-ids]
Indentation and braces ({ })	Identify a level in the configuration hierarchy.	[edit] routing-options { static { route default { nexthop <i>address</i> ; retain; } } }
;(semicolon)	Identifies a leaf statement at a configuration hierarchy level.	
J-Web GUI Conventions		
Bold text like this	Represents J-Web graphical user interface (GUI) items you click or select.	<ul style="list-style-type: none"> In the Logical Interfaces box, select All Interfaces. To cancel the configuration, click Cancel.
> (bold right angle bracket)	Separates levels in a hierarchy of J-Web selections.	In the configuration editor hierarchy, select Protocols>Ospf .

Documentation Feedback

We encourage you to provide feedback, comments, and suggestions so that we can improve the documentation. You can send your comments to techpubs-comments@juniper.net, or fill out the documentation feedback form at <https://www.juniper.net/cgi-bin/docbugreport/>. If you are using e-mail, be sure to include the following information with your comments:

- Document or topic name
- URL or page number
- Software release version (if applicable)

Requesting Technical Support

Technical product support is available through the Juniper Networks Technical Assistance Center (JTAC). If you are a customer with an active J-Care or JNASC support contract,

or are covered under warranty, and need postsales technical support, you can access our tools and resources online or open a case with JTAC.

- JTAC policies—For a complete understanding of our JTAC procedures and policies, review the JTAC User Guide located at <http://www.juniper.net/us/en/local/pdf/resource-guides/7100059-en.pdf> .
- Product warranties—For product warranty information, visit <http://www.juniper.net/support/warranty/> .
- JTAC Hours of Operation —The JTAC centers have resources available 24 hours a day, 7 days a week, 365 days a year.

Self-Help Online Tools and Resources

For quick and easy problem resolution, Juniper Networks has designed an online self-service portal called the Customer Support Center (CSC) that provides you with the following features:

- Find CSC offerings: <http://www.juniper.net/customers/support/>
- Find product documentation: <http://www.juniper.net/techpubs/>
- Find solutions and answer questions using our Knowledge Base: <http://kb.juniper.net/>
- Download the latest versions of software and review release notes: <http://www.juniper.net/customers/csc/software/>
- Search technical bulletins for relevant hardware and software notifications: <https://www.juniper.net/alerts/>
- Join and participate in the Juniper Networks Community Forum: <http://www.juniper.net/company/communities/>
- Open a case online in the CSC Case Management tool: <http://www.juniper.net/cm/>

To verify service entitlement by product serial number, use our Serial Number Entitlement (SNE) Tool: <https://tools.juniper.net/SerialNumberEntitlementSearch/>

Opening a Case with JTAC

You can open a case with JTAC on the Web or by telephone.

- Use the Case Management tool in the CSC at <http://www.juniper.net/cm/> .
- Call 1-888-314-JTAC (1-888-314-5822 toll-free in the USA, Canada, and Mexico).

For international or direct-dial options in countries without toll-free numbers, visit us at <http://www.juniper.net/support/requesting-support.html>

PART 1

Protocols

- ANCP Operational Mode Commands on page 3
- BFD Operational Mode Commands on page 15
- BGP Operational Mode Commands on page 25
- ES-IS Operational Mode Commands on page 61
- IP Multicast Operational Mode Commands on page 71
- IPv6 Operational Mode Commands on page 229
- IS-IS Operational Mode Commands on page 237
- LLDP Operational Mode Commands on page 285
- MVRP Operational Mode Commands on page 301
- OSPF Operational Mode Commands on page 313
- Protocol-Independent Routing Operational Mode Commands on page 381
- RIP Operational Mode Commands on page 557
- RIPng Operational Mode Commands on page 567

CHAPTER 1

ANCP Operational Mode Commands

Table 3 on page 3 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Access Node Control Protocol (ANCP) operations. Commands are listed in alphabetical order.

Table 3: ANCP Operational Mode Commands

Task	Command
Clear ANCP neighbors.	<code>clear ancp neighbor</code>
Display ANCP class-of-service information.	<code>show ancp cos</code>
Display ANCP neighbor information.	<code>show ancp neighbor</code>
Display ANCP subscriber information.	<code>show ancp subscriber</code>



NOTE: For information about how to configure ANCP, see the *Junos Subscriber Access Configuration Guide*.

clear ancp neighbor

Syntax	clear ancp neighbor <ip-address <i>ip-address</i> > <system-name <i>mac-address</i> >																																													
Release Information	Command introduced in Junos OS Release 9.4.																																													
Description	Clear the connection with all ANCP neighbors or with the specified ANCP neighbor.																																													
Options	ip-address <i>ip-address</i> —(Optional) Clear the ANCP neighbor specified by the IP address. system-name <i>mac-address</i> —(Optional) Clear the ANCP neighbor specified by the MAC address.																																													
Required Privilege Level	clear																																													
Related Documentation	<ul style="list-style-type: none">• show ancp neighbor on page 8																																													
List of Sample Output	show ancp neighbor on page 4 clear ancp neighbor on page 4																																													
Output Fields	When you enter this command, you are provided no feedback on the status of your request. You can enter the show ancp neighbor command before and after clearing the ANCP neighbors to verify the clear operation.																																													
show ancp neighbor	<p>The following sample output displays the connections with ANCP neighbors before and after the clear ancp neighbor command was issued.</p> <pre>user@host> show ancp neighbor</pre> <table><tr><th>IP Address</th><th>MAC Address</th><th>State</th><th>Subscriber Count</th><th>Capabilities</th></tr><tr><td>10.10.10.2</td><td>ba:ad:be:ef:10:10</td><td>Established</td><td>5</td><td>Topo</td></tr><tr><td>12.12.12.2</td><td>ba:ad:be:ef:10:12</td><td>Established</td><td>5</td><td>Topo</td></tr><tr><td>13.13.13.2</td><td>ba:ad:be:ef:10:13</td><td>Established</td><td>5</td><td>Topo</td></tr><tr><td>14.14.14.2</td><td>ba:ad:be:ef:10:14</td><td>Established</td><td>5</td><td>Topo</td></tr></table> <pre>user@host> clear ancp ip-address 10.10.10.2</pre> <pre>user@host> show ancp neighbor</pre> <table><tr><th>IP Address</th><th>MAC Address</th><th>State</th><th>Subscriber Count</th><th>Capabilities</th></tr><tr><td>12.12.12.2</td><td>ba:ad:be:ef:10:12</td><td>Established</td><td>5</td><td>Topo</td></tr><tr><td>13.13.13.2</td><td>ba:ad:be:ef:10:13</td><td>Established</td><td>5</td><td>Topo</td></tr><tr><td>14.14.14.2</td><td>ba:ad:be:ef:10:14</td><td>Established</td><td>5</td><td>Topo</td></tr></table>	IP Address	MAC Address	State	Subscriber Count	Capabilities	10.10.10.2	ba:ad:be:ef:10:10	Established	5	Topo	12.12.12.2	ba:ad:be:ef:10:12	Established	5	Topo	13.13.13.2	ba:ad:be:ef:10:13	Established	5	Topo	14.14.14.2	ba:ad:be:ef:10:14	Established	5	Topo	IP Address	MAC Address	State	Subscriber Count	Capabilities	12.12.12.2	ba:ad:be:ef:10:12	Established	5	Topo	13.13.13.2	ba:ad:be:ef:10:13	Established	5	Topo	14.14.14.2	ba:ad:be:ef:10:14	Established	5	Topo
IP Address	MAC Address	State	Subscriber Count	Capabilities																																										
10.10.10.2	ba:ad:be:ef:10:10	Established	5	Topo																																										
12.12.12.2	ba:ad:be:ef:10:12	Established	5	Topo																																										
13.13.13.2	ba:ad:be:ef:10:13	Established	5	Topo																																										
14.14.14.2	ba:ad:be:ef:10:14	Established	5	Topo																																										
IP Address	MAC Address	State	Subscriber Count	Capabilities																																										
12.12.12.2	ba:ad:be:ef:10:12	Established	5	Topo																																										
13.13.13.2	ba:ad:be:ef:10:13	Established	5	Topo																																										
14.14.14.2	ba:ad:be:ef:10:14	Established	5	Topo																																										
clear ancp neighbor	<pre>user@host> clear ancp neighbor</pre>																																													

show ancp cos

Syntax	<code>show ancp cos</code> <code><identifier <i>identifier</i>></code> <code><last-update></code> <code><pending-update></code>
Release Information	Command introduced in Junos OS Release 9.4.
Description	Display information about the CoS state for subscriber traffic.
Options	<p><code>identifier <i>identifier</i></code>—(Optional) Display information about the local loops for the specified access identifier.</p> <p><code>last-update</code>—(Optional) Display the most recently updated CoS information.</p> <p><code>pending-update</code>—(Optional) Display the pending update of CoS information.</p>
Required Privilege Level	view
List of Sample Output	<p><code>show ancp cos</code> on page 6</p> <p><code>show ancp cos last-update</code> on page 6</p> <p><code>show ancp cos pending-update</code> on page 6</p>
Output Fields	Table 4 on page 5 lists the output fields for the show ancp cos command. Output fields are listed in the approximate order in which they appear.

Table 4: show ancp cos Output Fields

Field Name	Field Description
QoS Adjust Flag	State of QoS adjust: TRUE (configured) or FALSE (not configured).
Keepalive Timer	Interval between the keepalive messages that ANCP sends to CoS.
Cos State	State of the ANCP-CoS interaction: <ul style="list-style-type: none"> • ANCPD_COS_CONNECT_NEEDED • ANCPD_COS_CONNECT_PENDING • ANCPD_COS_CONNECT_DONE • ANCPD_COS_SESSION_SENT • ANCPD_COS_WRITE_READY
Connect Time	Time at which ANCP connected to CoS; useful for debugging.
Session Time	Time at which ANCP sent a session connect message to CoS; useful for debugging.
Routing Instance Time	Time at which ANCP sent the routing instance to CoS; useful for debugging.

Table 4: show ancp cos Output Fields (*continued*)

Field Name	Field Description
Keepalive Time	Time at which the last keepalive message was sent.
Rate Update Time	Time at which the shaping rate was last updated.
Type	Subscriber access type: ifl indicates that a single VLAN carries subscriber traffic and iflset indicates that a set of VLANs carries subscriber traffic.
Name	System-wide name of the particular subscriber access.
Index	Access identifier.
Pending Update	Actual downstream data rate to be applied next to this local loop, in Kbps.
Last Update	Actual downstream data rate last applied to this local loop, in Kbps.

show ancp cos user@host> show ancp cos

```

Qos Adjust Flag:      TRUE
Keepalive Timer:      45 secs
Cos State:             WRITE_READY
Connect Time:         Mon Nov 17 15:03:01 2008
Session Time:         Mon Nov 17 15:03:13 2008
Routing Instance Time: Mon Nov 17 15:03:14 2008
Keepalive Time:       Not Set
Rate Update Time:     Mon Nov 17 15:03:15 2008

```

Type	Name	Index	Pending Update	Last Update
iflset	set-ge-10410	1	None	64 Kbps
iflset	set-ge-10411	2	None	64 Kbps
ifl	ge-1/0/4.2	71	None	64 Kbps
ifl	ge-1/0/4.3	72	None	64 Kbps

show ancp cos last-update user@host> show ancp cos last-update

```

Qos Adjust Flag:      TRUE
Keepalive Timer:      45 secs
Cos State:             WRITE_READY
Connect Time:         Mon Nov 17 15:03:01 2008
Session Time:         Mon Nov 17 15:03:13 2008
Routing Instance Time: Mon Nov 17 15:03:14 2008
Keepalive Time:       Wed Nov 19 15:32:14 2008
Rate Update Time:     Mon Nov 17 15:03:15 2008

```

Type	Name	Index	Pending Update	Last Update
iflset	iflset0	1	None	64 Kbps
iflset	iflset1	2	None	64 Kbps

show ancp cos pending-update user@host> show ancp cos pending-update

```

Qos Adjust Flag:      TRUE

```

Keepalive Timer: 45 secs
Cos State: WRITE_READY
Connect Time: Mon Nov 17 15:03:01 2008
Session Time: Mon Nov 17 15:03:13 2008
Routing Instance Time: Mon Nov 17 15:03:14 2008
Keepalive Time: Wed Nov 19 15:32:29 2008
Rate Update Time: Mon Nov 17 15:03:15 2008

show ancp neighbor

Syntax	show ancp neighbor <brief detail extensive terse> <ip-address <i>ip-address</i> > <system-name <i>mac-address</i> >
Release Information	Command introduced in Junos OS Release 9.4.
Description	Display information about all ANCP neighbors or the specified ANCP neighbor.
Options	<p>brief detail extensive terse—(Optional) Display the specified level of detail.</p> <p>ip-address <i>ip-address</i>—(Optional) IP address of the ANCP neighbor (access node).</p> <p>system-name <i>mac-address</i>—(Optional) MAC address of the ANCP neighbor (access node).</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ancp neighbor on page 4
List of Sample Output	<p>show ancp neighbor on page 9</p> <p>show ancp neighbor ip-address on page 9</p>
Output Fields	Table 5 on page 8 lists the output fields for the show ancp neighbor command. Output fields are listed in the approximate order in which they appear.

Table 5: show ancp neighbor Output Fields

Field Name	Field Description
IP Address	IP address of the ANCP neighbor.
System Name	MAC address of the ANCP neighbor.
State	<p>State of the ANCP adjacency:</p> <ul style="list-style-type: none"> Established—ANCP session has been established. Init—ANCP session has been initiated. SynSent—ANCP has sent a SYN message. SynReceived—ANCP has sent a SYNACK message.
Subscriber Count	Number of subscribers associated with the ANCP neighbor (access local loop).
Capabilities	Negotiated ANCP capability. Currently, only topology discovery is available.
TCP Port	TCP port on which ANCP messages are exchanged.
System Instance	Number identifying the ANCP link instance from the edge device's perspective.

Table 5: show ancp neighbor Output Fields (*continued*)

Field Name	Field Description
Peer Instance	Number identifying the ANCP instance from the access node's perspective. This number is unique and changes when the node or link comes back up after going down.
Timer	Adjacency timer value advertised by the ANCP peer in 100 ms increments; the interval between ANCP ACK messages. This value remains constant for the duration of an ANCP session.
Partition Type	Number that identifies whether partitions are used and how the ID is negotiated: <ul style="list-style-type: none"> • 0—No partition. • 1—Fixed partition requested. • 2—Fixed partition assigned.
Partition Flag	Number that specifies the type of partition requested: 1 (new adjacency) or 2 (recovered adjacency).
Partition Identifier	Number that associates the ANCP message with a specific partition.
Dead Timer	Remaining period that the edge device waits for adjacency packets from a neighbor before declaring the neighbor to be down. The maximum dead time value is three times the configured adjacency timer value. This field displays the current value based on the time that the last adjacency packet was received.

show ancp neighbor user@host> show ancp neighbor

IP Address	State	Up Time	Subscriber Count	Capabilities
10.10.10.2	Established	3	2	Topo
11.11.11.2	Established	3	2	Topo

show ancp neighbor ip-address user@host> show ancp neighbor 10.10.10.2

```
Neighbor Information
  IP Address   : 10.10.10.2
  System Name  : ba:ad:be:ef:10:10
  TCP Port     : 3332
  State        : Established
  Subscriber Count : 5
  Capabilities  : Topology Discovery
  System Instance : 6
  Peer Instance : 1695
  Timer         : 250
  Partition Type : 0
  Partition Flag : 1
  Partition Identifier : 0
  Dead Timer    : 63
```

show ancp subscriber

Syntax	show ancp subscriber <brief detail extensive terse> <identifier <i>identifier</i>> <neighbor <i>ip-address</i>>
Release Information	Command introduced in Junos OS Release 9.4.
Description	Display information about all subscribers (local access loops), the identified subscriber, or the subscriber associated with the specified ANCP neighbor (access node).
Options	<p>brief detail extensive terse—(Optional) Display the specified level of detail.</p> <p>identifier <i>identifier</i>—(Optional) Display information about the subscriber specified by the access identifier.</p> <p>neighbor <i>ip-address</i>—(Optional) Display information about the local loops connected to the specified access node.</p>
Required Privilege Level	view
List of Sample Output	<p>show ancp subscriber brief on page 12</p> <p>show ancp subscriber neighbor ip-address detail on page 12</p> <p>show ancp subscriber identifier identifier detail on page 13</p>
Output Fields	Table 6 on page 10 lists the output fields for the show ancp subscriber command. Output fields are listed in the approximate order in which they appear.

Table 6: show ancp subscriber Output Fields

Field Name	Field Description
Loop Identifier	Access loop identifier as sent by the access node and configured to map the subscriber to an interface.
Type	Type of digital subscriber line employed by the access node: ADSL1 , ADSL2 , ADSL2+ , VDSL1 , VDSL2 , SDSL , or UNKNOWN .
State	State of the DSL line: Idle , Show Time , or Silent .
Rate Kbps	Actual downstream data rate for this local loop.
Neighbor	IP address of ANCP neighbor (access node).
Access Node Identifier	Access node identifier as sent by the access node and configured to map the subscriber to an interface.
Neighbor IP Address	IP address of the ANCP neighbor (access node).

Table 6: show ancp subscriber Output Fields (*continued*)

Field Name	Field Description
Aggregate Circuit Identifier Binary	Binary identifier for the VLAN circuit ID.
DSL Type	Type of digital subscriber line employed by the access node: ADSL1 , ADSL2 , ADSL2+ , VDSL1 , VDSL2 , SDSL , or UNKNOWN .
Interface Type	Type of interface employed for subscriber traffic: ifl for a single VLAN or interface-set for a configured group of VLANs.
Interface	Name of the interface set or logical interface.
DSL Line State	State of the DSL line: Idle , Show Time , or Silent .
Actual Net Data Upstream	Actual upstream data rate for this local loop, in Kbps.
Actual Net Data Downstream	Actual downstream data rate for this local loop, in Kbps.
DSL Line Data Link	Data link protocol employed on the access loop: AAL5 or Ethernet .
DSL Line Encapsulation	Encapsulation type on the access loop, for Ethernet only: <ul style="list-style-type: none"> • 0—NA, type not conveyed • 1—Untagged Ethernet • 2—Single-tagged Ethernet
DSL Line Encapsulation Payload	Payload carried across the access loop: <ul style="list-style-type: none"> • 0—NA, type not conveyed • 1—PPPoA LLC • 2—PPPoA null • 3—IPoA LLC • 4—IPoA null • 5—Ethernet over AAL5 LLC with FCS • 6—Ethernet over AAL5 LLC without FCS • 7—Ethernet over AAL5 null with FCS • 8—Ethernet over AAL5 null without FCS
Minimum Net Data Upstream	Minimum upstream data rate desired by the operator for this local loop, in Kbps.
Minimum Net Data Downstream	Minimum downstream data rate desired by the operator for this local loop, in Kbps.
Maximum Net Data Upstream	Maximum upstream data rate desired by the operator for this local loop, in Kbps.

Table 6: show ancp subscriber Output Fields (*continued*)

Field Name	Field Description
Maximum Net Data Downstream	Maximum downstream data rate desired by the operator for this local loop, in Kbps.
Attainable Net Data Upstream	Maximum attainable upstream data rate for this local loop, in Kbps.
Attainable Net Data Downstream	Maximum attainable downstream data rate for this local loop, in Kbps.
Minimum Low Power Data Downstream	Minimum downstream data rate desired by the operator for this local loop in low power state, in Kbps.
Minimum Low Power Data Upstream	Minimum upstream data rate desired by the operator for this local loop in low power state, in Kbps.
Maximum Interleave Delay Downstream	Maximum interleaving delay for downstream data, in milliseconds.
Maximum Interleave Delay Upstream	Maximum interleaving delay for upstream data, in milliseconds.
Actual Interleave Delay Downstream	Actual interleaving delay for downstream data, in milliseconds.
Actual Interleave Delay Upstream	Actual interleaving delay for upstream data, in milliseconds.

show ancp subscriber brief

user@host> show ancp subscriber brief

Loop Identifier	Type	Interface	Rate Kbps	Neighbor
port-1-10	VDSL2	set-ge-10410	64	10.10.10.2
port-1-11	VDSL2	set-ge-10411	64	11.11.11.2
port-2-10	VDSL2	ge-1/0/4.12	64	10.12.12.2
port-2-11	VDSL2	ge-1/0/4.13	64	10.13.13.2

show ancp subscriber neighbor ip-address detail

user@host> show ancp subscriber neighbor 10.11.11.2 detail

```
Subscriber Information
  Access Loop Identifier : port-2-11
    Neighbor IP Address   : 10.11.11.2
    Aggregate Circuit Identifier Binary : 0/0
    DSL Type              : VDSL2
    Interface Type        : ifl
    Interface              : ge-1/0/4.10
```

```

DSL Line State : Show Time
Actual Net Data Upstream : 64
Actual Net Data Downstream : 64
DSL Line Data Link : AAL5
DSL Line Encapsulation : N/A
DSL Line Encapsulation Payload : N/A
Minimum Net Data Upstream : 64
Minimum Net Data Downstream : 64
Maximum Net Data Upstream : 64
Maximum Net Data Downstream : 64
Attainable Net Data Upstream : 64
Attainable Net Data Downstream : 64
Minimum Low Power Data Downstream : 64
Minimum Low Power Data Upstream : 64
Maximum Interleave Delay Downstream : 50
Maximum Interleave Delay Upstream : 50
Actual Interleave Delay Downstream : 50
Actual Interleave Delay Upstream : 50
Access Loop Identifier : port-1-11
Neighbor IP Address : 10.11.11.2
Aggregate Circuit Identifier Binary : 0/0
DSL Type : DSL 0
Interface Type : interface-set
Interface : set-ge-10411
DSL Line State : Show Time
Actual Net Data Upstream : 64
Actual Net Data Downstream : 64
DSL Line Data Link : AAL5
DSL Line Encapsulation : N/A
DSL Line Encapsulation Payload : N/A
Minimum Net Data Upstream : 64
Minimum Net Data Downstream : 64
Maximum Net Data Upstream : 64
Maximum Net Data Downstream : 64
Attainable Net Data Upstream : 64
Attainable Net Data Downstream : 64
Minimum Low Power Data Downstream : 64
Minimum Low Power Data Upstream : 64
Maximum Interleave Delay Downstream : 50
Maximum Interleave Delay Upstream : 50
Actual Interleave Delay Downstream : 50
Actual Interleave Delay Upstream : 50

```

```

show ancp subscriber user@host> show ancp subscriber identifier port-1-11 detail
identifier identifier
detail

```

```

Access Loop Identifier : port-1-11
Neighbor IP Address : 10.11.11.2
Aggregate Circuit Identifier Binary : 0/0
DSL Type : DSL 0
Interface Type : interface-set
Interface : set-ge-10411
DSL Line State : Show Time
Actual Net Data Upstream : 64
Actual Net Data Downstream : 64
DSL Line Data Link : AAL5
DSL Line Encapsulation : N/A
DSL Line Encapsulation Payload : N/A
Minimum Net Data Upstream : 64
Minimum Net Data Downstream : 64
Maximum Net Data Upstream : 64

```

Maximum Net Data Downstream	: 64
Attainable Net Data Upstream	: 64
Attainable Net Data Downstream	: 64
Minimum Low Power Data Downstream	: 64
Minimum Low Power Data Upstream	: 64
Maximum Interleave Delay Downstream	: 50
Maximum Interleave Delay Upstream	: 50
Actual Interleave Delay Downstream	: 50
Actual Interleave Delay Upstream	: 50

CHAPTER 2

BFD Operational Mode Commands

Table 7 on page 15 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Bidirectional Forwarding Detection (BFD) sessions. Commands are listed in alphabetical order.

Table 7: BFD Operational Mode Commands

Task	Command
Clear BFD parameters.	clear bfd adaptation
Clear BFD sessions.	clear bfd session
Display BFD session statistics.	show bfd session



NOTE: The protocol client for which the BFD session is active can be either IS-IS or OSPF.



NOTE: For information about how to configure BFD, see the *Junos Routing Protocols Configuration Guide*.

clear bfd adaptation

Syntax	<code>clear bfd adaptation</code> <code><address <i>session-address</i>></code> <code><discriminator <i>discr-number</i>></code>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear adaptation for Bidirectional Forwarding Detection (BFD) sessions. BFD is a simple hello mechanism that detects failures in a network. Configured BFD interval timers can change, adapting to network situations. Use this command to return BFD interval timers to their configured values.
Options	<p><code>none</code>—Clear adaptation for all BFD sessions.</p> <p><code>address <i>session-address</i></code>—(Optional) Clear adaptation for all BFD sessions matching the specified address.</p> <p><code>discriminator <i>discr-number</i></code>—(Optional) Clear adaptation for the local BFD session matching the specified discriminator.</p>
Additional Information	For more information, see the description of the bfd-liveness-detection configuration statement in the <i>Junos Routing Protocols Configuration Guide</i> .
Required Privilege Level	clear
List of Sample Output	clear bfd adaptation on page 16
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear bfd adaptation	<code>user@host> clear bfd adaptation</code>

clear bfd session

Syntax	clear bfd session <address <i>session-address</i> > <discriminator <i>discr-number</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Drop one or more Bidirectional Forwarding Detection (BFD) sessions.
Options	<p>none—Drop all BFD sessions.</p> <p>address <i>session-address</i>—(Optional) Drop all BFD sessions matching the specified address.</p> <p>discriminator <i>discr-number</i>—(Optional) Drop the local BFD session matching the specified discriminator.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show bfd session on page 18
List of Sample Output	clear bfd session on page 17
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear bfd session	user@host> clear bfd session

show bfd session

Syntax	<code>show bfd session</code> <code><brief detail extensive summary></code> <code><address <i>address</i>></code> <code><discriminator <i>discriminator</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><prefix <i>address</i>></code>
Release Information	Command introduced before Junos OS Release 7.4. discriminator and address options introduced in Junos OS Release 8.2. prefix option introduced in Junos OS Release 9.0.
Description	Display information about active Bidirectional Forwarding Detection (BFD) sessions.
Options	none —(Same as brief) Display information about active BFD sessions. brief detail extensive summary —(Optional) Display the specified level of output. address <i>address</i> —(Optional) Display information about the BFD session for the specified neighbor address. discriminator <i>discriminator</i> —(Optional) Display information about the BFD session using the specified local discriminator. logical-system (all <i>logical-system-name</i>) —(Optional) Perform this operation on all logical systems or on a particular logical system. prefix <i>address</i> —(Optional) Display information about all of the BFD sessions for the specified LDP forwarding equivalence class (FEC).
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• clear bfd session on page 17
List of Sample Output	show bfd session on page 21 show bfd session brief on page 22 show bfd session detail on page 22 show bfd session detail (with Authentication) on page 22 show bfd session address extensive on page 22 show bfd session extensive on page 23 show bfd session extensive (with Authentication) on page 23 show bfd session summary on page 24
Output Fields	Table 8 on page 19 describes the output fields for the show bfd session command. Output fields are listed in the approximate order in which they appear.

Table 8: show bfd session Output Fields

Field Name	Field Description	Level of Output
Address	Address on which the BFD session is active.	brief detail extensive none
State	State of the BFD session: Up , Down , Init (initializing), or Failing .	brief detail extensive none
Interface	Interface on which the BFD session is active.	brief detail extensive none
Detect Time	Negotiated time interval, in seconds, used to detect BFD control packets.	brief detail extensive none
Transmit Interval	Time interval, in seconds, used by the transmitting system to send BFD control packets.	brief detail extensive none
Multiplier	Negotiated multiplier by which the time interval is multiplied to determine the detection time for the transmitting system.	detail extensive
Session up time	How long a BFD session has been established.	detail extensive
Client	Protocol for which the BFD session is active: ISIS , OSPF , or Static .	detail extensive
TX interval	Time interval, in seconds, used by the host system to transmit BFD control packets.	brief detail extensive none
RX interval	Time interval, in seconds, used by the host system to receive BFD control packets.	brief detail extensive none
Authenticate	Indicates that BFD authentication is configured.	detail extensive
keychain	Name of the security authentication keychain being used by a specific client. BFD authentication information for a client is provided in a single line and includes the keychain , algo , and mode parameters. Multiple clients may be configured on a BFD session.	extensive
algo	BFD authentication algorithm being used for a specific client: keyed-md5 , keyed-sha-1 , meticulous-keyed-md5 , meticulous-keyed-sha-1 , or simple-password . BFD authentication information for a client is provided in a single line and includes the keychain , algo , and mode parameters. Multiple clients may be configured on a BFD session.	extensive
mode	Level of BFD authentication enforcement being used by a specific client: strict or loose . Strict enforcement indicates authentication is configured at both ends of the session (the default). Loose enforcement indicates that one end of the session may not be authenticated. BFD authentication information for a client is provided in a single line and includes the keychain , algo , and mode parameters. Multiple clients may be configured on a BFD session.	extensive

Table 8: show bfd session Output Fields (*continued*)

Field Name	Field Description	Level of Output
Local diagnostic	Local diagnostic information about failing BFD sessions.	detail extensive
Remote diagnostic	Remote diagnostic information about failing BFD sessions.	detail extensive
Remote state	Reports whether the remote system's BFD packets have been received and whether the remote system is receiving transmitted control packets.	detail extensive
Version	BFD version: 0 or 1.	extensive
Replicated	The replicated flag appears when nonstop routing is configured and the BFD session has been replicated to the backup Routing Engine.	detail extensive
Min async interval	Minimum amount of time, in seconds, between asynchronous control packet transmissions across the BFD session.	extensive
Min slow interval	Minimum amount of time, in seconds, between synchronous control packet transmissions across the BFD session.	extensive
Adaptive async TX interval	Transmission interval being used because of adaptation.	extensive
RX interval	Minimum required receive interval.	extensive
Local min TX interval	Minimum amount of time, in seconds, between control packet transmissions on the local system.	extensive
Local min RX interval	Minimum amount of time, in seconds, between control packet detections on the local system.	extensive
Remote min TX interval	Minimum amount of time, in seconds, between control packet transmissions on the remote system.	extensive
Remote min RX interval	Minimum amount of time, in seconds, between control packet detections on the remote system.	extensive
Threshold transmission interval	Threshold for notification if the transmission interval increases.	extensive
Threshold for detection time	Threshold for notification if the detection time increases.	extensive
Local discriminator	Authentication code used by the local system to identify that BFD session.	extensive
Remote discriminator	Authentication code used by the remote system to identify that BFD session.	extensive
Echo mode	Information about the state of echo transmissions on the BFD session.	extensive

Table 8: show bfd session Output Fields (*continued*)

Field Name	Field Description	Level of Output
Prefix	LDP FEC address associated with the BFD session.	All levels
Egress, Destination	Displays the LDP FEC destination address. This field is displayed only on a router at the egress of an LDP FEC, where the BFD session has an LDP Operation, Administration, and Maintenance (OAM) client.	All levels
Remote is control-plane independent	<p>The BFD session on the remote peer is running on its Packet Forwarding Engine. In this case, when the remote node undergoes a graceful restart, the local peer can help the remote peer with the graceful restart.</p> <p>The following BFD sessions are not distributed to the Packet Forwarding Engine: multihop sessions, tunnel-encapsulated sessions, and sessions over aggregated Ethernet and integrated routing and bridging (IRB) interfaces.</p>	extensive
Authentication	<p>Summary status of BFD authentication:</p> <ul style="list-style-type: none"> status—enabled/active indicates authentication is configured and active. enabled/inactive indicates authentication is configured but not active. This only occurs when the remote end of the session does not support authentication and loose checking is configured. keychain—Name of the security authentication keychain associated with the specified BFD session. algo—BFD authentication algorithm being used: keyed-md5, keyed-sha-1, meticulous-keyed-md5, meticulous-keyed-sha-1, or simple-password. mode—Level of BFD authentication enforcement: strict or loose. Strict enforcement indicates authentication is configured at both ends of the session (the default). Loose enforcement indicates that one end of the session may not be authenticated. <p>This information is only shown if BFD authentication is configured.</p>	extensive
sessions	Total number of active BFD sessions.	All levels
clients	Total number of clients that are hosting active BFD sessions.	All levels
Cumulative transmit rate	Total number of BFD control packets transmitted per second on all active sessions.	All levels
Cumulative receive rate	Total number of BFD control packets received per second on all active sessions.	All levels
Multi-hop, min-recv-TTL	Minimum time to live (TTL) accepted if the session is configured for multihop.	extensive
route table	Route table used if the session is configured for multihop.	extensive
local address	Local address of source used if the session is configured for multihop.	extensive

```
show bfd session user@host> show bfd session
```

Address	State	Interface	Detect Time	Transmit Interval	Multiplier
10.9.1.33	Up	so-7/1/0.0	0.600	0.200	3
10.9.1.29	Up	ge-4/0/0.0	0.600	0.200	3

2 sessions, 2 clients

Cumulative transmit rate 10.0 pps, cumulative receive rate 10.0 pps

show bfd session brief The output for the **show bfd session brief** command is identical to that for the **show bfd session** command. For sample output, see **show bfd session** on page 21.

show bfd session detail

```
user@host> show bfd session detail
```

Address	State	Interface	Detect Time	Transmit Interval	Multiplier
10.9.1.33	Up	so-7/1/0.0	0.600	0.200	3
Client OSPF, TX interval 0.200, RX interval 0.200, multiplier 3					
Session up time 3d 00:34					
Local diagnostic None, remote diagnostic None					
Remote state Up, version 1					
Replicated					
10.9.1.29	Up	ge-4/0/0.0	0.600	0.200	3
Client ISIS L2, TX interval 0.200, RX interval 0.200, multiplier 3					
Session up time 3d 00:29, previous down time 00:00:01					
Local diagnostic NbrSignal, remote diagnostic AdminDown					
Remote state Up, version 1					

2 sessions, 2 clients

Cumulative transmit rate 10.0 pps, cumulative receive rate 10.0 pps

show bfd session detail (with Authentication)

```
user@host> show bfd session detail
```

Address	State	Interface	Detect Time	Transmit Interval	Multiplier
10.9.1.33	Up	so-7/1/0.0	0.600	0.200	3
Client OSPF, TX interval 0.200, RX interval 0.200, multiplier 3, Authenticate					
Session up time 3d 00:34					
Local diagnostic None, remote diagnostic None					
Remote state Up, version 1					
Replicated					
10.9.1.29	Up	ge-4/0/0.0	0.600	0.200	3
Client ISIS L2, TX interval 0.200, RX interval 0.200, multiplier 3					
Session up time 3d 00:29, previous down time 00:00:01					
Local diagnostic NbrSignal, remote diagnostic AdminDown					
Remote state Up, version 1					

2 sessions, 2 clients

Cumulative transmit rate 10.0 pps, cumulative receive rate 10.0 pps

show bfd session address extensive

```
user@host> show bfd session 10.255.245.212 extensive
```

Address	State	Interface	Detect Time	Transmit Interval	Multiplier
10.255.245.212	Up		1.200	0.400	3
Client Static, TX interval 0.400, RX interval 0.400, multiplier 3					
Session up time 00:17:03, previous down time 00:00:14					
Local diagnostic CtlExpire, remote diagnostic NbrSignal					
Remote state Up, version 1					
Replicated					
Min async interval 0.400, min slow interval 1.000					
Adaptive async tx interval 0.400, rx interval 0.400					
Local min tx interval 0.400, min rx interval 0.400, multiplier 3					

```

Remote min tx interval 0.400, min rx interval 0.400, multiplier 3
Threshold transmission interval 0.000, Threshold for detection time 0.000
Local discriminator 6, remote discriminator 16
Echo mode disabled/inactive
Multi-hop, min-recv-TTL 255, route-table 0, local-address 10.255.245.205

```

```

1 sessions, 1 clients
Cumulative transmit rate 2.5 pps, cumulative receive rate 2.5 pps

```

show bfd session extensive

```

user@host> show bfd session extensive

```

Address	State	Interface	Detect Time	Transmit Interval	Multiplier
10.9.1.33	Up	so-7/1/0.0	0.600	0.200	3
Client OSPF, TX interval 0.200, RX interval 0.200, multiplier 3					
Session up time 3d 00:34					
Local diagnostic None, remote diagnostic None					
Remote state Up, version 1					
Replicated					
Min async interval 0.200, min slow interval 1.000					
Adaptive async tx interval 0.200, rx interval 0.200					
Local min tx interval 0.200, min rx interval 0.200, multiplier 3					
Remote min tx interval 0.100, min rx interval 0.100, multiplier 3					
Threshold transmission interval 0.000, Threshold for detection time 0.000					
Local discriminator 11, remote discriminator 80					
Echo mode disabled/inactive					
10.9.1.29	Up	ge-4/0/0.0	0.600	0.200	3
Client ISIS L2, TX interval 0.200, RX interval 0.200, multiplier 3					
Session up time 3d 00:30, previous down time 00:00:01					
Local diagnostic NbrSignal, remote diagnostic AdminDown					
Remote state Up, version 1					
Replicated					
Min async interval 0.200, min slow interval 1.000					
Adaptive async tx interval 0.200, rx interval 0.200					
Local min tx interval 0.200, min rx interval 0.200, multiplier 3					
Remote min tx interval 0.200, min rx interval 0.200, multiplier 3					
Threshold transmission interval 0.000, Threshold for detection time 0.000					
Local discriminator 12, remote discriminator 11					
Echo mode disabled/inactive					
Remote is control-plane independent					

```

2 sessions, 2 clients

```

```

Cumulative transmit rate 10.0 pps, cumulative receive rate 10.0 pps

```

show bfd session extensive (with Authentication)

```

user@host> show bfd session extensive

```

Address	State	Interface	Detect Time	Transmit Interval	Multiplier
192.168.208.26	Up	so-1/0/0.0	2.400	0.800	10
Client Static, TX interval 0.600, RX interval 0.600, Authenticate					
keychain bfd, algo keyed-md5, mode loose					
Session up time 00:18:07					
Local diagnostic None, remote diagnostic NbrSignal					
Remote state Up, version 1					
Replicated					
Min async interval 0.600, min slow interval 1.000					
Adaptive async TX interval 0.600, RX interval 0.600					
Local min TX interval 0.600, minimum RX interval 0.600, multiplier 10					
Remote min TX interval 0.800, min RX interval 0.800, multiplier 3					

```
Local discriminator 2, remote discriminator 3  
Echo mode disabled/inactive  
Authentication enabled/active, keychain bfd, algo keyed-md5, mode loose
```

```
1 sessions, 1 clients  
Cumulative transmit rate 1.2 pps, cumulative receive rate 1.2 pps
```

```
show bfd session summary user@host> show bfd session summary  
2 sessions, 2 clients  
Cumulative transmit rate 10.0 pps, cumulative receive rate 10.0 pps
```

CHAPTER 3

BGP Operational Mode Commands

Table 9 on page 25 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Border Gateway Protocol (BGP). Commands are listed in alphabetical order.

Table 9: BGP Operational Mode Commands

Task	Command
Remove damping information.	clear bgp damping
Remove entries from the neighbor database.	clear bgp neighbor
Request BGP to refresh routes.	clear bgp table
Display information about the BGP Monitoring Protocol.	show bgp bmp
Display entries in the BGP group database.	show bgp group
Display traffic statistics for BGP groups.	show bgp group traffic-statistics
Display entries in the BGP neighbor database.	show bgp neighbor
Display the BGP state replication status for nonstop active routing-enabled devices.	show bgp replication
Display BGP summary information.	show bgp summary
Display BGP damping parameters.	show policy damping



NOTE: For more BGP-related commands, such as **show route protocol**, **show route instance**, and **show route table**, see *Protocol-Independent Routing Operational Mode Commands*.



NOTE: For information about how to configure BGP, see the *Junos Routing Protocols Configuration Guide*.

clear bgp damping

Syntax	clear bgp damping <logical-system (all <i>logical-system-name</i>)> < <i>prefix</i> >
Syntax (EX Series Switch)	clear bgp damping < <i>prefix</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Border Gateway Protocol (BGP) route flap damping information.
Options	none—Clear all BGP route flap damping information. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. <i>prefix</i> —(Optional) Clear route flap damping information for only the specified destination prefix.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show policy damping on page 58• show route damping on page 419
List of Sample Output	clear bgp damping on page 26
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear bgp damping	user@host> clear bgp damping

clear bgp neighbor

Syntax	<pre>clear bgp neighbor <as as-number> <instance instance-name> <logical-system (all logical-system-name)> <neighbor> <soft soft-inbound> <soft-minimum-igp></pre>
Syntax (EX Series Switch)	<pre>clear bgp neighbor <as as-number> <instance instance-name> <neighbor> <soft soft-inbound> <soft-minimum-igp></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p>
Description	<p>Perform one of the following tasks:</p> <ul style="list-style-type: none"> • Change the state of one or more Border Gateway Protocol (BGP) neighbors to IDLE. For neighbors in the ESTABLISHED state, this command drops the TCP connection to the neighbors and then reestablishes the connection. • (soft or soft-inbound keyword only) Reapply export policies or import policies, respectively, and send refresh updates to one or more BGP neighbors without changing their state.
Options	<p>none—Change the state of all BGP neighbors to IDLE.</p> <p>as as-number—(Optional) Apply this command only to neighbors in the specified autonomous system (AS).</p> <p>instance instance-name—(Optional) Apply this command only to neighbors for the specified routing instance.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor—(Optional) IP address of a BGP peer. Apply this command only to the specified neighbor.</p> <p>soft—(Optional) Reapply any export policies and send refresh updates to neighbors without clearing the state.</p> <p>soft-inbound—(Optional) Reapply any import policies and send refresh updates to neighbors without clearing the state.</p> <p>soft-minimum-igp—(Optional) Provides soft refresh of the outbound state when the interior gateway protocol (IGP) metric is reset.</p>

Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show bgp neighbor on page 39
List of Sample Output	clear bgp neighbor on page 28
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear bgp neighbor	user@host> clear bgp neighbor

clear bgp table

Syntax	<code>clear bgp table <i>table-name</i></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>clear bgp table <i>table-name</i></code>
Release Information	Command introduced in Junos OS Release 9.0. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Request BGP to refresh routes in a specified routing table.
Options	<code>logical-system (all <i>logical-system-name</i>)</code> —(Optional) Perform this operation on all logical systems or on a particular logical system. <code><i>table-name</i></code> —Request that BGP refresh routes in the specified table.
Additional Information	In some cases, a prefix limit is associated with a routing table for a VPN instance. When this limit is exceeded (for example, because of a network misconfiguration), some routes might not be inserted in the table. Such routes need to be added to the table after the network issue is resolved. Use the clear bgp table command to request that BGP refresh routes in a VPN instance table.
Required Privilege Level	clear
List of Sample Output	clear bgp table private.inet.0 on page 29
Output Fields	This command produces no output.
clear bgp table private.inet.0	<code>user@host> clear bgp table private.inet.0</code>

show bgp bmp

Syntax	show bgp bmp
Release Information	Command introduced in Junos OS Release 9.5. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about the BGP Monitoring Protocol (BMP).
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show bgp bmp on page 30
Output Fields	Table 10 on page 30 lists the output fields for the show bgp bmp command. Output fields are listed in the approximate order in which they appear.

Table 10: show bgp bmp Output Fields

Field Name	Field Description
BMP station address/port:	IP address and port number of monitoring station to which BGP Monitoring Protocol (BMP) statistics are sent.
BMP session state	Status of the BMP session: UP or DOWN .
Memory consumed by BMP	Memory used by the active BMP session.
Statistics timeout	Amount of time, in seconds, between transmissions of BMP data to the monitoring station.
Memory limit	Threshold, in bytes, at which the routing device stops collecting BMP data if it is exceeded.
Memory-connect retry timeout	Amount of time, in seconds, after which the routing device attempts to resume a BMP session that was ended after the configured memory threshold was exceeded.

```

show bgp bmp      user@host> show bgp bmp
                    BMP station address/port: 172.24.24.157+5454
                    BMP session state: DOWN
                    Memory consumed by BMP: 0
                    Statistics timeout: 15
                    Memory limit: 10485760
                    Memory connect retry timeout: 600

```

show bgp group

Syntax	<pre>show bgp group <brief detail summary> <group-name> <instance instance-name> <logical-system (all logical-system-name)> <rtf></pre>
Syntax (EX Series Switch)	<pre>show bgp group <brief detail summary> <group-name> <instance instance-name></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p>
Description	Display information about the configured Border Gateway Protocol (BGP) groups.
Options	<p>none—Display group information about all BGP groups.</p> <p>brief detail summary—(Optional) Display the specified level of output.</p> <p>group-name—(Optional) Display group information for the specified group.</p> <p>instance instance-name—(Optional) Display information about a particular BGP peer in the specified instance. The instance name can be master for the main instance, or any valid configured instance name or its prefix.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>rtf—(Optional) Display BGP group route targeting information.</p>
Required Privilege Level	view
List of Sample Output	<pre>show bgp group on page 34 show bgp group on page 35 show bgp group brief on page 35 show bgp group detail on page 35 show bgp group rtf detail on page 36 show bgp group summary on page 36 show bgp group summary on page 36</pre>
Output Fields	Table 11 on page 32 describes the output fields for the show bgp group command. Output fields are listed in the approximate order in which they appear.

Table 11: show bgp group Output Fields

Field Name	Field Description	Level of Output
Group type or Group	Type of BGP group: Internal or External .	All levels
AS	AS number of the peer. For internal BGP (IBGP), this number is the same as Local AS .	brief detail none
Local AS	AS number of the local routing device.	brief detail none
Name	Name of a specific BGP group.	brief detail none
Flags	Flags associated with the BGP group. This field is used by Juniper Networks customer support.	brief detail none
Export	Export policies configured for the BGP group with the export statement.	brief detail none
MED tracks IGP metric update delay	Time interval, in seconds, that updates to multiple exit discriminator (MED) are delayed. Also displays the time remaining before the interval is set to expire	All
Total peers	Total number of peers in the group.	brief detail none
Established	Number of peers in the group that are in the established state.	All levels
Active/Received/Accepted/Damped	<p>Multipurpose field that displays information about BGP peer sessions. The field's contents depend upon whether a session is established and whether an established session was established in the main routing device or in a routing instance.</p> <ul style="list-style-type: none"> • If a peer is not established, the field shows the state of the peer session: Active, Connect, or Idle. • If a BGP session is established in the main routing device, the field shows the number of active, received, accepted, and damped routes that are received from a neighbor and appear in the inet.0 (main) and inet.2 (multicast) routing tables. For example, 8/10/10/2 and 2/4/4/0 indicate the following: <ul style="list-style-type: none"> • 8 active routes, 10 received routes, 10 accepted routes, and 2 damped routes from a BGP peer appear in the inet.0 routing table. • 2 active routes, 4 received routes, 4 accepted routes, and no damped routes from a BGP peer appear in the inet.2 routing table. 	summary
ip-addresses	List of peers who are members of the group. The address is followed by the peer's port number.	All levels

Table 11: show bgp group Output Fields (*continued*)

Field Name	Field Description	Level of Output
Route Queue Timer	Number of seconds until queued routes are sent. If this time has already elapsed, this field displays the number of seconds by which the updates are delayed.	detail
Route Queue	Number of prefixes that are queued up for sending to the peers in the group.	detail
<i>inet.number</i>	Number of active, received, accepted, and damped routes in the routing table. For example, inet.0: 7/10/9/0 indicates the following: <ul style="list-style-type: none"> 7 active routes, 10 received routes, 9 accepted routes, and no damped routes from a BGP peer appear in the inet.0 routing table. 	none
Table <i>inet.number</i>	Information about the routing table. <ul style="list-style-type: none"> Received prefixes—Total number of prefixes from the peer, both active and inactive, that are in the routing table. Active prefixes—Number of prefixes received from the peer that are active in the routing table. Suppressed due to damping—Number of routes currently inactive because of damping or other reasons. These routes do not appear in the forwarding table and are not exported by routing protocols. Advertised prefixes—Number of prefixes advertised to a peer. Received external prefixes—Total number of prefixes from the external BGP (EBGP) peers, both active and inactive, that are in the routing table. Active external prefixes—Number of prefixes received from the EBGP peers that are active in the routing table. Externals suppressed—Number of routes received from EBGP peers currently inactive because of damping or other reasons. Received internal prefixes—Total number of prefixes from the IBGP peers, both active and inactive, that are in the routing table. Active internal prefixes—Number of prefixes received from the IBGP peers that are active in the routing table. Internals suppressed—Number of routes received from IBGP peers currently inactive because of damping or other reasons. RIB State—Status of the graceful restart process for this routing table: BGP restart is complete, BGP restart in progress, VPN restart in progress, or VPN restart is complete. 	detail
Groups	Total number of groups.	All levels
Peers	Total number of peers.	All levels
External	Total number of external peers.	All levels
Internal	Total number of internal peers.	All levels
Down peers	Total number of unavailable peers.	All levels

Table 11: show bgp group Output Fields (*continued*)

Field Name	Field Description	Level of Output
Flaps	Total number of flaps that occurred.	All levels
Table	Name of a routing table.	brief, none
Tot Paths	Total number of paths.	brief, none
Act Paths	Number of active routes.	brief, none
Suppressed	Number of routes currently inactive because of damping or other reasons. These routes do not appear in the forwarding table and are not exported by routing protocols.	brief, none
History	Number of withdrawn routes stored locally to keep track of damping history.	brief, none
Damp State	Number of active routes with a figure of merit greater than zero, but lower than the threshold at which suppression occurs.	brief, none
Pending	Routes being processed by BGP import policy.	brief, none
Group	Group the peer belongs to in the BGP configuration.	detail
Receive mask	Mask of the received target included in the advertised route.	detail
Entries	Number of route entries received.	detail
Target	Route target that is to be passed by route-target filtering. If a route advertised from the provider edge (PE) routing device matches an entry in the route-target filter, the route is passed to the peer.	detail
Mask	Mask which specifies that the peer receive routes with the given route target.	detail

```

show bgp group user@host> show bgp group
Group Type: Internal   AS: 21           Local AS: 21
Name: from_vpn04_to_other Index: 0       Flags: <>
Holdtime: 0
Total peers: 3         Established: 3
10.255.14.178+179
10.255.71.24+179
10.255.14.182+179
inet.0: 2/7/0

Group Type: External   Local AS: 21
Name: from_vpn04_to_vpn06 Index: 1       Flags: <Export Eval>
Export: [ internal-and-bgp ]
Holdtime: 0
Traffic Statistics Interval: 300
Total peers: 1         Established: 1

```



```
100.1.3.2+2910
inet.0: 5/10/0
```

Groups: 2	Peers: 4	External: 1	Internal: 3	Down peers: 0	Flaps: 2
Table	Tot Paths	Act Paths	Suppressed	History Damp State	Pending
inet.0	17	7	0	0	0

show bgp group

```
user@host> show bgp group
Group Type: External                               Local AS: 65500
Name: as65501peers      Index: 0                   Flags: Export <Eval>
Export: [ export-policy ]
Holdtime: 0
Total peers: 1          Established: 1
192.168.4.222+179
Trace options: all
Trace file: /var/log/bgp size 10485760 files 10
inet.0: 7/10/9/0
inet.2: 0/0/0/0
```

Groups: 1	Peers: 1	External: 1	Internal: 0	Down peers: 0	Flaps: 0
Table	Tot Paths	Act Paths	Suppressed	History Damp State	Pending
inet.0	10	7	0	0	0
inet.2	0	0	0	0	0

show bgp group brief

The output for the **show bgp group brief** command is identical to that for the **show bgp group** command. For sample output, see **show bgp group** on page 34.

show bgp group detail

```
user@host> show bgp group detail
Group Type: Internal      AS: 21                      Local AS: 21
Name: from_vpn04_to_other Index: 0                     Flags: <>
Holdtime: 0
Total peers: 3            Established: 3
10.255.14.178+179
10.255.71.24+179
10.255.14.182+179
Route Queue Timer: unset Route Queue: empty
Table inet.0
  Active prefixes:          2
  Received prefixes:        7
  Suppressed due to damping: 0
  Advertised prefixes:      5

Group Type: External      Local AS: 21
Name: from_vpn04_to_vpn06 Index: 1                     Flags: <Export Eval>
Export: [ internal-and-bgp ]
Holdtime: 0
Traffic Statistics Interval: 300
Total peers: 1            Established: 1
100.1.3.2+2910
Route Queue Timer: unset Route Queue: empty
Table inet.0
  Active prefixes:          5
  Received prefixes:        10
  Suppressed due to damping: 0
  Advertised prefixes:      6

Groups: 2 Peers: 4 External: 1 Internal: 3 Down peers: 0 Flaps: 2
Table inet.0
  Received prefixes:          17
```

```

Active prefixes:          7
Suppressed due to damping: 0
Received external prefixes: 10
Active external prefixes: 5
Externals suppressed:    0
Received internal prefixes: 7
Active internal prefixes: 2
Internals suppressed:    0
RIB State: BGP restart is complete

```

```

show bgp group rtf detail user@host> show bgp group rtf detail
Group: asbr
Receive mask: 00000001
Table: bgp.rtarget.0
Target
109:1/64
109:2/64
701:1/64
10458:2/64
Flags: Filter Entries: 4
Mask
00000001
00000001
00000001
00000001

Group: mesh_0
Receive mask: 0000000e
Table: bgp.rtarget.0
Target
109:1/64
701:1/64
701:2/64
10458:1/64
10458:2/64
10458:3/64
10458:5/64
10458:6/64
10458:7/64
10458:8/64
10458:10/64
Flags: Filter Entries: 12
Mask
00000002
00000002
00000002
0000000e
00000006
00000006
00000006
00000004
00000008
00000008
00000002

```

```

show bgp group summary user@host> show bgp group summary
Group      Type      Peers    Established    Active/Received/Damped
from_vpn04_to_other Internal 3      3
inet.0      : 2/7/0
from_vpn04_to_vpn06 External 1      1
inet.0      : 5/10/0

Groups: 2 Peers: 4 External: 1 Internal: 3 Down peers: 0 Flaps: 2
inet.0      : 7/17/0 External: 5/10/0 Internal: 2/7/0

```

```

show bgp group summary user@host> show bgp group summary
Group      Type      Peers    Established    Active/Received/Accepted/Damped
as65501peers External 1      1
Trace options: all
Trace file: /var/log/bgp size 10485760 files 10
inet.0      : 7/10/9/0
inet.2      : 0/0/0/0

Groups: 1 Peers: 1 External: 1 Internal: 0 Down peers: 0 Flaps: 0
inet.0      : 7/10/9/0 External: 7/10/9/0 Internal: 0/0/0/0
inet.2      : 0/0/0/0 External: 0/0/0/0 Internal: 0/0/0/0

```

show bgp group traffic-statistics

Syntax	show bgp group traffic-statistics <brief detail> <group-name> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display the traffic statistics for configured Border Gateway Protocol (BGP) groups.
Options	<p>none—Display traffic statistics for all BGP groups.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>group-name—(Optional) Display BGP traffic statistics for only the specified group.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show bgp group traffic-statistics (Per-Group-Label Not Configured) on page 38</p> <p>show bgp group traffic-statistics (Per-Group-Label Configured) on page 38</p>
Output Fields	Table 12 on page 37 describes the output fields for the show bgp group traffic-statistics command. Output fields are listed in the approximate order in which they appear.

Table 12: show bgp group traffic-statistics Output Fields

Field Name	Field Description
Group name	Name of a specific BGP group.
Group Index	Index number for the BGP group.
NLRI	Network layer reachability information (NLRI) indicating the source of the traffic statistics for the BGP group.
FEC	Forwarding equivalence classes (FECs) associated with the BGP group.
Packets	Number of packets sent through each FEC.
Bytes	Number of bytes transmitted through each FEC.
EgressAS	Autonomous system (AS) number of the egress router.
AdvLabel	Label associated with each FEC.

```

show bgp group      user@host> show bgp group traffic-statistics
traffic-statistics
(Per-Group-Label
Not Configured)
Group Name: ext1      Group Index: 0      NLRI: inet-labeled-unicast
FEC                   Packets           Bytes      EgressAS   AdvLabel
10.255.245.55         0              0          I          100224
10.255.245.57         0              0          I          100240
100.101.0.0           550            48400      25         100256
100.102.0.0           550            48400      25         100256
100.103.0.0           550            48400      25         100272
100.104.0.0           550            48400      25         100272
192.168.25.0          0              0          I          100288

Group Name: ext2      Group Index: 1      NLRI: inet-labeled-unicast
FEC                   Packets           Bytes      EgressAS   AdvLabel
10.255.245.55         0              0          I          100224
10.255.245.57         0              0          I          100240
100.101.0.0           550            48400      25         100256
100.102.0.0           550            48400      25         100256
100.103.0.0           550            48400      25         100272
100.104.0.0           550            48400      25         100272
192.168.25.0          0              0          I          100288

show bgp group      user@host> show bgp group traffic-statistics
traffic-statistics
(Per-Group-Label
Configured)
Group Name: ext1      Group Index: 0      NLRI: inet-labeled-unicast
FEC                   Packets           Bytes      EgressAS   AdvLabel
10.255.245.55         0              0          I          100384
10.255.245.57         0              0          I          100400
100.101.0.0           101            8888       25         100416
100.102.0.0           101            8888       25         100416
100.103.0.0           0              0          25         100432
100.104.0.0           0              0          25         100432
192.168.25.0          0              0          I          100448

Group Name: ext2      Group Index: 1      NLRI: inet-labeled-unicast
FEC                   Packets           Bytes      EgressAS   AdvLabel
10.255.245.55         0              0          I          100304
10.255.245.57         0              0          I          100320
100.101.0.0           0              0          25         100336
100.102.0.0           0              0          25         100336
100.103.0.0           101            8888       25         100352
100.104.0.0           101            8888       25         100352
192.168.25.0          0              0          I          100368

```

show bgp neighbor

Syntax	<pre>show bgp neighbor <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <<i>neighbor-address</i>> <orf (detail <i>neighbor-address</i>)></pre>
Syntax (EX Series Switch)	<pre>show bgp neighbor <instance <i>instance-name</i>> <<i>neighbor-address</i>> <orf (<i>neighbor-address</i> detail)></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>orf option introduced in Junos OS Release 9.2.</p> <p>orf option introduced in Junos OS Release 9.2 for EX Series switches.</p>
Description	Display information about Border Gateway Protocol (BGP) peers.
Options	<p>none—Display information about all BGP peers.</p> <p>instance <i>instance-name</i>—(Optional) Display information about BGP peers for only the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>neighbor-address</i>—(Optional) Display information for only the BGP peer at the specified IP address.</p> <p>orf (detail <i>neighbor-address</i>)—(Optional) Display outbound route-filtering information for all BGP peers or only for the BGP peer at the specified IP address. The default is to display brief output. Use the detail option to display detailed output.</p>
Additional Information	For information about the local-address , nlri , hold-time , and preference statements, see the <i>Junos Routing Protocols Configuration Guide</i> .
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear bgp neighbor on page 27
List of Sample Output	<p>show bgp neighbor (CLNS) on page 45</p> <p>show bgp neighbor (Layer 2 VPN) on page 46</p> <p>show bgp neighbor (Layer 3 VPN) on page 48</p> <p>show bgp neighbor (With Dropped Path Attributes and Ignored Path Attributes) on page 49</p> <p>show bgp neighbor neighbor-address on page 49</p> <p>show bgp neighbor neighbor-address on page 50</p>

show bgp neighbor orf neighbor-address detail on page 51

Output Fields Table 13 on page 40 describes the output fields for the **show bgp neighbor** command. Output fields are listed in the approximate order in which they appear.

Table 13: show bgp neighbor Output Fields

Field Name	Field Description
Peer	Address of the BGP neighbor. The address is followed by the neighbor's port number.
AS	AS number of the peer.
Local	Address of the local routing device. The address is followed by the peer's port number.
Type	Type of peer: Internal or External .
State	<p>Current state of the BGP session:</p> <ul style="list-style-type: none"> • Active—BGP is initiating a transport protocol connection in an attempt to connect to a peer. If the connection is successful, BGP sends an Open message. • Connect—BGP is waiting for the transport protocol connection to be completed. • Established—The BGP session has been established, and the peers are exchanging update messages. • Idle—This is the first stage of a connection. BGP is waiting for a Start event. • OpenConfirm—BGP has acknowledged receipt of an open message from the peer and is waiting to receive a keepalive or notification message. • OpenSent—BGP has sent an open message and is waiting to receive an open message from the peer.
Flags	<p>Internal BGP flags:</p> <ul style="list-style-type: none"> • Aggregate Label—BGP has aggregated a set of incoming labels (labels received from the peer) into a single forwarding label. • CleanUp—The peer session is being shut down. • Delete—This peer has been deleted. • Idled—This peer has been permanently idled. • ImportEval—At the last commit, this peer was identified as needing to reevaluate all received routes. • Initializing—The peer session is initializing. • SendRtn—Messages are being sent to the peer. • Sync—This peer is synchronized with the rest of the peer group. • TryConnect—Another attempt is being made to connect to the peer. • Unconfigured—This peer is not configured. • WriteFailed—An attempt to write to this peer failed.

Table 13: show bgp neighbor Output Fields (*continued*)

Field Name	Field Description
Last state	<p>Previous state of the BGP session:</p> <ul style="list-style-type: none"> • Active—BGP is initiating a transport protocol connection in an attempt to connect to a peer. If the connection is successful, BGP sends an Open message. • Connect—BGP is waiting for the transport protocol connection to be completed. • Established—The BGP session has been established, and the peers are exchanging update messages. • Idle—This is the first stage of a connection. BGP is waiting for a Start event. • OpenConfirm—BGP has acknowledged receipt of an open message from the peer and is waiting to receive a keepalive or notification message. • OpenSent—BGP has sent an open message and is waiting to receive an open message from the peer.
Last event	<p>Last activity that occurred in the BGP session:</p> <ul style="list-style-type: none"> • Closed—The BGP session closed. • ConnectRetry—The transport protocol connection failed, and BGP is trying again to connect. • HoldTime—The session ended because the hold timer expired. • KeepAlive—The local routing device sent a BGP keepalive message to the peer. • Open—The local routing device sent a BGP open message to the peer. • OpenFail—The local routing device did not receive an acknowledgment of a BGP open message from the peer. • RecvKeepAlive—The local routing device received a BGP keepalive message from the peer. • RecvNotify—The local routing device received a BGP notification message from the peer. • RecvOpen—The local routing device received a BGP open message from the peer. • RecvUpdate—The local routing device received a BGP update message from the peer. • Start—The peering session started. • Stop—The peering session stopped. • TransportError—A TCP error occurred.
Last error	<p>Last error that occurred in the BGP session:</p> <ul style="list-style-type: none"> • Cease—An error occurred, such as a version mismatch, that caused the session to close. • Finite State Machine Error—In setting up the session, BGP received a message that it did not understand. • Hold Time Expired—The session's hold time expired. • Message Header Error—The header of a BGP message was malformed. • Open Message Error—A BGP open message contained an error. • None—No errors occurred in the BGP session. • Update Message Error—A BGP update message contained an error.
Export	Name of the export policy that is configured on the peer.
Import	Name of the import policy that is configured on the peer.

Table 13: show bgp neighbor Output Fields (*continued*)

Field Name	Field Description
Options	Configured BGP options: <ul style="list-style-type: none"> • AddressFamily—Configured address family: inet or inet-vpn. • AuthKeyChain—Authentication key change is enabled. • DropPathAttributes—Certain path attributes are configured to be dropped from neighbor updates during inbound processing. • GracefulRestart—Graceful restart is configured. • HoldTime—Hold time configured with the hold-time statement. The hold time is three times the interval at which keepalive messages are sent. • IgnorePathAttributes—Certain path attributes are configured to be ignored in neighbor updates during inbound processing. • Local Address—Address configured with the local-address statement. • Multihop—Allow BGP connections to external peers that are not on a directly connected network. • NLRI—Configured MBGP state for the BGP group: multicast, unicast, or both if you have configured nlri any. • Peer AS—Configured peer autonomous system (AS). • Preference—Preference value configured with the preference statement. • Refresh—Configured to refresh automatically when the policy changes. • Rib-group—Configured routing table group.
Path-attributes dropped	Path attribute codes that are dropped from neighbor updates.
Path-attributes ignored	Path attribute codes that are ignored during neighbor updates.
Authentication key change	Name of the authentication key chain enabled.
Authentication algorithm	Type of authentication algorithm enabled: hmac or md5
Address families configured	Names of configured address families for the VPN.
Local Address	Address of the local routing device.
Holdtime	Hold time configured with the hold-time statement. The hold time is three times the interval at which keepalive messages are sent.
Flags for NLRI inet-label-unicast	Flags related to labeled-unicast: <ul style="list-style-type: none"> • TrafficStatistics—Collection of statistics for labeled-unicast traffic is enabled.

Table 13: show bgp neighbor Output Fields (*continued*)

Field Name	Field Description
Traffic statistics	Information about labeled-unicast traffic statistics: <ul style="list-style-type: none"> • Options—Options configured for collecting statistics about labeled-unicast traffic. • File—Name and location of statistics log files. • size—Size of all the log files, in bytes. • files—Number of log files.
Traffic Statistics Interval	Time between sample periods for labeled-unicast traffic statistics, in seconds.
Preference	Preference value configured with the preference statement.
Number of flaps	Number of times the BGP session has gone down and then come back up.
Peer ID	Router identifier of the peer.
Peer Index	Index of this peer in its group.
Local ID	Router identifier of the local routing device.
Local Interface	Name of the interface on the local routing device.
Active holdtime	Hold time the local routing device negotiated with the peer.
Keepalive Interval	Keepalive interval, in seconds.
BFD	Status of BFD failure detection.
Local Address	Name of directly connected interface over which the direct EBGP peering is established.
NLRI for restart configured on peer	Names of address families configured for restart.
NLRI advertised by peer	Address families supported by the peer: unicast or multicast .
NLRI for this session	Address families being used for this session.
Peer supports Refresh capability	Remote peer's ability to send and request full route table readvertisement (route refresh capability). For more information, see RFC 2918, <i>Route Refresh Capability for BGP-4</i> .
Restart time configured on peer	Configured time allowed for restart on the neighbor.
Stale routes from peer are kept for	When graceful restart is negotiated, the maximum time allowed to hold routes from neighbors after the BGP session has gone down.
Restart time requested by this peer	Restart time requested by this neighbor during capability negotiation.

Table 13: show bgp neighbor Output Fields (*continued*)

Field Name	Field Description
Restart flag received from the peer	When this field appears, the BGP speaker has restarted (Restarting) and this peer should not wait for the end-of-rib marker from the speaker before advertising routing information to the speaker.
NLRI that peer supports restart for	Neighbor supports graceful restart for this address family.
NLRI peer can save forwarding state	Neighbor supporting this address family saves all forwarding states.
NLRI that peer saved forwarding for	Neighbor saves all forwarding states for this address family.
NLRI that restart is negotiated for	Router supports graceful restart for this address family.
NLRI of received end-of-rib markers	Address families for which end-of-routing-table markers are received from the neighbor.
NLRI of all end-of-rib markers sent	Address families for which end-of-routing-table markers are sent to the neighbor.
Table inet.number	<p>Information about the routing table:</p> <ul style="list-style-type: none"> • RIB State—BGP is in the graceful restart process for this routing table: restart is complete or restart in progress. • Bit—Number that represents the entry in the routing table for this peer. • Send state—State of the BGP group: in sync, not in sync, or not advertising. • Active prefixes—Number of prefixes received from the peer that are active in the routing table. • Received prefixes—Total number of prefixes from the peer, both active and inactive, that are in the routing table. • Accepted prefixes—Total number of prefixes from the peer that have been accepted by a routing policy. • Suppressed due to damping—Number of routes currently inactive because of damping or other reasons. These routes do not appear in the forwarding table and are not exported by routing protocols.
Last traffic (seconds)	Last time any traffic was received from the peer or sent to the peer, and the last time the local routing device checked.
Input messages	Messages that BGP has received from the receive socket buffer, showing the total number of messages, number of update messages, number of times a policy is changed and refreshed, and the buffer size in octets. The buffer size is 16 KB.
Output messages	Messages that BGP has written to the transmit socket buffer, showing the total number of messages, number of update messages, number of times a policy is changed and refreshed, and the buffer size in octets. The buffer size is 16 KB.

Table 13: show bgp neighbor Output Fields (*continued*)

Field Name	Field Description
Input dropped path attributes	Information about dropped path attributes: <ul style="list-style-type: none"> • Code—Path attribute code. • Count—Path attribute count.
Input ignored path attributes	Information about ignored path attributes: <ul style="list-style-type: none"> • Code—Path attribute code. • Count—Path attribute count.
Output queue	Number of BGP packets that are queued to be transmitted to a particular neighbor for a particular routing table. Output queue 0 is for unicast NLRIs, and queue 1 is for multicast NLRIs.
Trace options	Configured tracing of BGP protocol packets and operations.
Trace file	Name of the file to receive the output of the tracing operation.
Filter Updates rcv	(orf option only) Number of outbound-route filters received for each configured address family. NOTE: The counter is cumulative. For example, the counter is increased after the remote peer either resends or clears the outbound route filtering prefix list.
Immediate	(orf option only) Number of route updates received with the immediate flag set. The immediate flag indicates that the BGP peer should readvertise the updated routes. NOTE: The counter is cumulative. For example, the counter is increased after the remote peer either resends or clears the outbound route filtering prefix list.
Filter	(orf option only) Type of prefix filter received: prefix-based or extended-community .
Received filter entries	(orf option only) List of received filters displayed.
seq	(orf option only) Numerical order assigned to this prefix entry among all the received outbound route filter prefix entries.
prefix	(orf option only) Address for the prefix entry that matches the filter.
minlength	(orf option only) Minimum prefix length, in bits, required to match this prefix.
maxlength	(orf option only) Maximum prefix length, in bits, required to match this prefix.
match	(orf option only) For this prefix match, whether to permit or deny route updates.

show bgp neighbor (CLNS)

```

user@host> show bgp neighbor
Peer: 10.245.245.1+179 AS 200 Local: 10.245.245.3+3770 AS 100
Type: External State: Established Flags: <ImportEval Sync>
Last State: OpenConfirm Last Event: RecvKeepAlive
Last Error: None
Options: <Multihop Preference LocalAddress HoldTime AddressFamily PeerAS
Rib-group Refresh>

```

```

Address families configured: iso-vpn-unicast
Local Address: 10.245.245.3 Holdtime: 90 Preference: 170
Number of flaps: 0
Peer ID: 10.245.245.1      Local ID: 10.245.245.3      Active Holdtime: 90
Keepalive Interval: 30      Peer index: 0
NLRI advertised by peer: iso-vpn-unicast
NLRI for this session: iso-vpn-unicast
Peer supports Refresh capability (2)
Table bgp.isovpn.0 Bit: 10000
  RIB State: BGP restart is complete
  RIB State: VPN restart is complete
  Send state: in sync
  Active prefixes:          3
  Received prefixes:        3
  Suppressed due to damping: 0
  Advertised prefixes:      3
Table aaaa.iso.0
  RIB State: BGP restart is complete
  RIB State: VPN restart is complete
  Send state: not advertising
  Active prefixes:          3
  Received prefixes:        3
  Suppressed due to damping: 0
Last traffic (seconds): Received 6      Sent 5      Checked 5
Input messages: Total 1736 Updates 4      Refreshes 0      Octets 33385
Output messages: Total 1738 Updates 3      Refreshes 0      Octets 33305
Output Queue[0]: 0
Output Queue[1]: 0

```

show bgp neighbor
(Layer 2 VPN)

```

user@host> show bgp neighbor
Peer: 10.69.103.2      AS 65100 Local: 10.69.103.1      AS 65103
Type: External      State: Active      Flags: <ImportEval>
Last State: Idle      Last Event: Start
Last Error: None
Export: [ BGP-INET-import ]
Options: <Preference LocalAddress HoldTime GracefulRestart AddressFamily PeerAS
Refresh>
Address families configured: inet-unicast
Local Address: 10.69.103.1 Holdtime: 90 Preference: 170
Number of flaps: 0
Peer: 10.69.104.2      AS 65100 Local: 10.69.104.1      AS 65104
Type: External      State: Active      Flags: <ImportEval>
Last State: Idle      Last Event: Start
Last Error: None
Export: [ BGP-L-import ]
Options: <Preference LocalAddress HoldTime GracefulRestart AddressFamily PeerAS
Refresh>
Address families configured: inet-labeled-unicast
Local Address: 10.69.104.1 Holdtime: 90 Preference: 170
Number of flaps: 0
Peer: 10.255.14.182+179 AS 69      Local: 10.255.14.176+2131 AS 69
Type: Internal      State: Established      Flags: <ImportEval>
Last State: OpenConfirm      Last Event: RecvKeepAlive
Last Error: None
Options: <Preference LocalAddress HoldTime GracefulRestart AddressFamily
Rib-group Refresh>
Address families configured: inet-vpn-unicast l2vpn
Local Address: 10.255.14.176 Holdtime: 90 Preference: 170
Number of flaps: 0
Peer ID: 10.255.14.182      Local ID: 10.255.14.176      Active Holdtime: 90
Keepalive Interval: 30

```

```

NLRI for restart configured on peer: inet-vpn-unicast 12vpn
NLRI advertised by peer: inet-vpn-unicast 12vpn
NLRI for this session: inet-vpn-unicast 12vpn
Peer supports Refresh capability (2)
Restart time configured on the peer: 120
Stale routes from peer are kept for: 300
Restart time requested by this peer: 120
NLRI that peer supports restart for: inet-vpn-unicast 12vpn
NLRI peer can save forwarding state: inet-vpn-unicast 12vpn
NLRI that peer saved forwarding for: inet-vpn-unicast 12vpn
NLRI that restart is negotiated for: inet-vpn-unicast 12vpn
NLRI of received end-of-rib markers: inet-vpn-unicast 12vpn
Table bgp.13vpn.0 Bit: 10000
  RIB State: BGP restart in progress
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          10
  Received prefixes:        10
  Suppressed due to damping: 0
Table bgp.12vpn.0 Bit: 20000
  RIB State: BGP restart in progress
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          1
  Received prefixes:        1
  Suppressed due to damping: 0
Table BGP-INET.inet.0 Bit: 30000
  RIB State: BGP restart in progress
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          2
  Received prefixes:        2
  Suppressed due to damping: 0
Table BGP-L.inet.0 Bit: 40000
  RIB State: BGP restart in progress
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          2
  Received prefixes:        2
  Suppressed due to damping: 0
Table LDP.inet.0 Bit: 50000
  RIB State: BGP restart is complete
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          1
  Received prefixes:        1
  Suppressed due to damping: 0
Table OSPF.inet.0 Bit: 60000
  RIB State: BGP restart is complete
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          2
  Received prefixes:        2
  Suppressed due to damping: 0
Table RIP.inet.0 Bit: 70000
  RIB State: BGP restart is complete
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          2
  Received prefixes:        2
  Suppressed due to damping: 0

```

```

Table STATIC.inet.0 Bit: 80000
  RIB State: BGP restart is complete
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          1
  Received prefixes:        1
  Suppressed due to damping: 0
Table L2VPN.l2vpn.0 Bit: 90000
  RIB State: BGP restart is complete
  RIB State: VPN restart in progress
  Send state: in sync
  Active prefixes:          1
  Received prefixes:        1
  Suppressed due to damping: 0
Last traffic (seconds): Received 0    Sent 0    Checked 0
Input messages: Total 14    Updates 13    Refreshes 0    Octets 1053
Output messages: Total 3    Updates 0    Refreshes 0    Octets 105
Output Queue[0]: 0
Output Queue[1]: 0
Output Queue[2]: 0
Output Queue[3]: 0
Output Queue[4]: 0
Output Queue[5]: 0
Output Queue[6]: 0
Output Queue[7]: 0
Output Queue[8]: 0

```

show bgp neighbor
(Layer 3 VPN)

```

user@host> show bgp neighbor
Peer: 4.4.4.4+179    AS 10045 Local: 5.5.5.5+1214    AS 10045
  Type: Internal    State: Established    Flags: <ImportEval>
  Last State: OpenConfirm    Last Event: RecvKeepAlive
  Last Error: None
  Export: [ match-all ] Import: [ match-all ]
  Options: <Preference LocalAddress HoldTime GracefulRestart AddressFamily
    Rib-group Refresh>
  Address families configured: inet-vpn-unicast
  Local Address: 5.5.5.5 Holdtime: 90 Preference: 170
  Flags for NLRI inet-labeled-unicast: TrafficStatistics
  Traffic Statistics: Options: all File: /var/log/bstat.log
                                size 131072 files 10

Traffic Statistics Interval: 60
Number of flaps: 0
Peer ID: 192.168.1.110    Local ID: 192.168.1.111    Active Holdtime: 90
Keepalive Interval: 30
NLRI for restart configured on peer: inet-vpn-unicast
NLRI advertised by peer: inet-vpn-unicast
NLRI for this session: inet-vpn-unicast
Peer supports Refresh capability (2)
Restart time configured on the peer: 120
Stale routes from peer are kept for: 300
Restart time requested by this peer: 120
NLRI that peer supports restart for: inet-vpn-unicast
NLRI peer can save forwarding state: inet-vpn-unicast
NLRI that peer saved forwarding for: inet-vpn-unicast
NLRI that restart is negotiated for: inet-vpn-unicast
NLRI of received end-of-rib markers: inet-vpn-unicast
NLRI of all end-of-rib markers sent: inet-vpn-unicast
Table bgp.l3vpn.0 Bit: 10000
  RIB State: BGP restart is complete
  RIB State: VPN restart is complete
  Send state: in sync

```

```

Active prefixes:          2
Received prefixes:        2
Suppressed due to damping: 0
Table vpn-green.inet.0 Bit: 20001
RIB State: BGP restart is complete
RIB State: VPN restart is complete
Send state: in sync
Active prefixes:          2
Received prefixes:        2
Suppressed due to damping: 0
Last traffic (seconds): Received 15   Sent 20   Checked 20
Input messages: Total 40   Updates 2   Refreshes 0   Octets 856
Output messages: Total 44   Updates 2   Refreshes 0   Octets 1066
Output Queue[0]: 0
Output Queue[1]: 0
Trace options: detail packets
Trace file: /var/log/bgpr.log size 131072 files 10

```

**show bgp neighbor
(With Dropped Path
Attributes and Ignored
Path Attributes)**

```

user@host> show bgp neighbor
regress@pro9-b1# run show bgp neighbor
Peer: 1.1.3.2+179 AS 2      Local: 1.1.3.1+62746 AS 1
Type: External   State: Established   Flags: <ImportEval Sync RSync>
Last State: OpenConfirm   Last Event: RecvKeepAlive
Last Error: None
Options: <Preference KeepAll PeerAS LocalAS Refresh>
Options: <ConnectRetryInterval DropPathAttributes IgnorePathAttributes>
Path-attributes dropped:    4  10 128
Path-attributes ignored:   8  50 113
Holdtime: 90 Preference: 170 Local AS: 1 Local System AS: 10
.
.
.
Input messages: Total 525   Updates 2   Refreshes 0   Octets 10022
Output messages: Total 522   Updates 0   Refreshes 0   Octets 9981
Input dropped path attributes: Code:    4   Count:    1
Input ignored path attributes: Code:    8   Count:    1
Output Queue[0]: 0
Trace file: /var/log/bgp_nsr size 131072 files 10

```

**show bgp neighbor
neighbor-address**

```

user@host> show bgp neighbor 192.168.1.111
Peer: 10.255.245.12+179 AS 35 Local: 10.255.245.13+2884 AS 35
Type: Internal   State: Established (route reflector client)Flags: <Sync>
Last State: OpenConfirm   Last Event: RecvKeepAlive
Last Error: None
Options: <Preference LocalAddress HoldTime Cluster AddressFamily Rib-group Refresh>
Address families configured: inet-vpn-unicast inet-labeled-unicast
Local Address: 10.255.245.13 Holdtime: 90 Preference: 170
Flags for NLRI inet-vpn-unicast: AggregateLabel
Flags for NLRI inet-labeled-unicast: AggregateLabel
Number of flaps: 0
Peer ID: 10.255.245.12   Local ID: 10.255.245.13   Active Holdtime: 90
Keepalive Interval: 30
BFD: disabled
NLRI advertised by peer: inet-vpn-unicast inet-labeled-unicast
NLRI for this session: inet-vpn-unicast inet-labeled-unicast
Peer supports Refresh capability (2)
Restart time configured on the peer: 300
Stale routes from peer are kept for: 60
Restart time requested by this peer: 300

```

```

NLRI that peer supports restart for: inet-unicast inet6-unicast
NLRI that restart is negotiated for: inet-unicast inet6-unicast
NLRI of received end-of-rib markers: inet-unicast inet6-unicast
NLRI of all end-of-rib markers sent: inet-unicast inet6-unicast
Table inet.0 Bit: 10000
  RIB State: restart is complete
  Send state: in sync
  Active prefixes: 4
  Received prefixes: 6
  Suppressed due to damping: 0
Table inet6.0 Bit: 20000
  RIB State: restart is complete
  Send state: in sync
  Active prefixes: 0
  Received prefixes: 2
  Suppressed due to damping: 0
Last traffic (seconds): Received 3    Sent 3    Checked 3
Input messages: Total 9    Updates 6    Refreshes 0    Octets 403
Output messages: Total 7    Updates 3    Refreshes 0    Octets 365
Output Queue[0]: 0
Output Queue[1]: 0
Trace options: detail packets
Trace file: /var/log/bgpr size 131072 files 10

```

**show bgp neighbor
neighbor-address**

```

user@host> show bgp neighbor 192.168.4.222
Peer: 192.168.4.222+4902 AS 65501 Local: 192.168.4.221+179 AS 65500
  Type: External    State: Established    Flags: <Sync>
  Last State: OpenConfirm    Last Event: RecvKeepAlive
  Last Error: Cease
  Export: [ export-policy ] Import: [ import-policy ]
  Options: <Preference HoldTime AddressFamily PeerAS PrefixLimit Refresh>
  Address families configured: inet-unicast inet-multicast
  Holdtime: 60000 Preference: 170
  Number of flaps: 4
  Last flap event: RecvUpdate
  Error: 'Cease' Sent: 5 Recv: 0
  Peer ID: 10.255.245.6    Local ID: 10.255.245.5    Active Holdtime: 60000
  Keepalive Interval: 20000    Peer index: 0
  BFD: disabled, down
  Local Interface: fxp0.0
  NLRI advertised by peer: inet-unicast inet-multicast
  NLRI for this session: inet-unicast inet-multicast
  Peer supports Refresh capability (2)
Table inet.0 Bit: 10000
  RIB State: BGP restart is complete
  Send state: in sync
  Active prefixes:      8
  Received prefixes:    10
  Accepted prefixes:    10
  Suppressed due to damping: 0
  Advertised prefixes:  3
Table inet.2 Bit: 20000
  RIB State: BGP restart is complete
  Send state: in sync
  Active prefixes:      0
  Received prefixes:    0
  Accepted prefixes:    0
  Suppressed due to damping: 0
  Advertised prefixes:  0
Last traffic (seconds): Received 357    Sent 357    Checked 357
Input messages: Total 4 Updates 2 Refreshes 0 Octets 211

```



```

Output messages: Total 4 Updates 1 Refreshes 0 Octets 147
Output Queue[0]: 0
Output Queue[1]: 0
Trace options: all
Trace file: /var/log/bgp size 10485760 files 10

```

**show bgp neighbor orf
neighbor-address
detail**

```
user@host > show bgp neighbor orf 192.168.165.56 detail
```

```
Peer: 192.168.165.56+179 Type: External
Group: ext1
```

```

inet-unicast
  Filter updates rcv:          1 Immediate:          1
  Filter: prefix-based receive
  Received filter entries:
    seq 1: prefix 2.2.2.2/32: minlen 32: maxlen 32: match deny:

inet6-unicast
  Filter updates rcv:          0 Immediate:          1
  Filter: prefix-based receive
  Received filter entries:
    *: *

```

show bgp replication

Syntax	show bgp replication
Release Information	Command introduced in JUNOS Release 8.5.
Description	Displays the status of BGP state replication between the master and backup Routing Engines on devices that have nonstop active routing configured on them. .
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show bgp replication (for Master) on page 53 show bgp replication (for Backup) on page 53
Output Fields	Table 14 on page 52 lists the output fields for the show bgp replication command. Output fields are listed in the approximate order in which they appear.

Table 14: show bgp replication Output Fields

Field Name	Field Description
session state	State of the current internal BGP state replication session, Up or Down, and the duration for which the session has been in the indicated state.
flaps	Total number of flaps that occurred.
protocol state	Current state of the protocol operation, Active, Connect, Idle, and the duration for which the protocol has been in the indicated state.
synchronization state	Synchronization state at the time of executing the command. The states can be: <ul style="list-style-type: none"> • Idle • Neighbor—Indicates that the neighbor state synchronization is in progress. • AckWait—Indicates that the request processing is over. • ORF—Indicates that the outbound routing filter synchronization is in progress. • RIB—Indicates that the routing table synchronization is in progress. • Complete
number of peers waiting	Total number of peers waiting for various messages: <ul style="list-style-type: none"> • AckWait—Number of peers waiting for a connection establishment or completed acknowledgment messages. • SoWait—Number of peers waiting for TCP socket-related operations. • Scheduled—Number of peers being synchronized.

Table 14: show bgp replication Output Fields (*continued*)

Field Name	Field Description
messages sent	<p>Number of various types of messages that have been sent since internal replication session became active:</p> <ul style="list-style-type: none"> • Open—Number of Open messages sent. • Establish—Number of connection establishment acknowledgment messages sent. • Update—Number of update messages sent. • Error—Number of error messages sent. • Complete—Number of connection complete acknowledgment messages sent.
messages received	<p>Total number of messages received:</p> <ul style="list-style-type: none"> • Open—Number of Open messages received. • Request—Number of request messages received: <ul style="list-style-type: none"> • Wildcard—Number of requests received that used wildcards in the target address. • Targeted—Number of requests received that used a specific address. • EstablishAck—Number of connection establishment acknowledgement messages received. • CompleteAck—Number of connection completed acknowledgement messages received.

show bgp replication (for Master) user@host> show bgp replication

Synchronization master:

Session state: Up, Since: 44:07

Flaps: 0

Protocol state: Idle, Since: 14

Synchronization state: Complete

Number of peers waiting: AckWait: 0, SoWait: 0, Scheduled: 0

Messages sent: Open 1, Establish 924, Update 381, Error 60, Complete 114

Messages received: Open 1, Request 1 wildcard 113 targeted, EstablishAck 924, CompleteAck 114

show bgp replication (for Backup) user@host> show bgp replication

Synchronization backup:

State: Established 13 ago

, Unsync timer: 2

Unsync entry queue:

Instance: 0 Neighbor: 30.30.30.1 elapsed: 7

Instance: 0 Neighbor: 40.40.40.3 elapsed: 7

Instance: 0 Neighbor: 40.40.40.4 elapsed: 7

Instance: 0 Neighbor: 40.40.40.5 elapsed: 7

Instance: 0 Neighbor: 40.40.40.6 elapsed: 7

Instance: 0 Neighbor: 40.40.40.1 elapsed: 7

Instance: 0 Neighbor: 40.40.40.2 elapsed: 7

show bgp summary

Syntax	show bgp summary <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show bgp summary <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Border Gateway Protocol (BGP) summary information.
Options	<p>none—Display BGP summary information for all routing instances.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified instance only. The instance name can be master for the main instance, or any valid configured instance name or its prefix.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show bgp summary (When a Peer Is Not Established) on page 56</p> <p>show bgp summary (When a Peer Is Established) on page 56</p> <p>show bgp summary (CLNS) on page 56</p> <p>show bgp summary (Layer 2 VPN) on page 56</p> <p>show bgp summary (Layer 3 VPN) on page 57</p>
Output Fields	Table 15 on page 54 describes the output fields for the show bgp summary command. Output fields are listed in the approximate order in which they appear.

Table 15: show bgp summary Output Fields

Field Name	Field Description
Groups	Number of BGP groups.
Peers	Number of BGP peers.
Down peers	Number of down BGP peers.
Table	Name of routing table.
Tot Paths	Total number of paths.
Act Paths	Number of active routes.

Table 15: show bgp summary Output Fields (*continued*)

Field Name	Field Description
Suppressed	Number of routes currently inactive because of damping or other reasons. These routes do not appear in the forwarding table and are not exported by routing protocols.
History	Number of withdrawn routes stored locally to keep track of damping history.
Damp State	Number of routes with a figure of merit greater than zero, but still active because the value has not reached the threshold at which suppression occurs.
Pending	Routes in process by BGP import policy.
Peer	Address of each BGP peer. Each peer has one line of output.
AS	Peer's AS number.
InPkt	Number of packets received from the peer.
OutPkt	Number of packets sent to the peer.
OutQ	Count of the number of BGP packets that are queued to be transmitted to a particular neighbor. It normally is 0 because the queue usually is emptied quickly.
Flaps	Number of times the BGP session has gone down and then come back up.
Last Up/Down	Last time since the neighbor transitioned to or from the established state.
State #Active /Received/Accepted /Damped	<p>Multipurpose field that displays information about BGP peer sessions. The field's contents depend upon whether a session is established and whether an established session was established in the main routing device or in a routing instance.</p> <ul style="list-style-type: none"> • If a peer is not established, the field shows the state of the peer session: Active, Connect, or Idle. • If a BGP session is established in the main routing device, the field shows the number of active, received, accepted, and damped routes that are received from a neighbor and appear in the inet.0 (main) and inet.2 (multicast) routing tables. For example, 8/10/10/2 and 2/4/4/0 indicate the following: <ul style="list-style-type: none"> • 8 active routes, 10 received routes, 10 accepted routes, and 2 damped routes from a BGP peer appear in the inet.0 routing table. • 2 active routes, 4 received routes, 4 accepted routes, and no damped routes from a BGP peer appear in the inet.2 routing table. • If a BGP session is established in a routing instance, the field indicates the established (Establ) state, identifies the specific routing table that receives BGP updates, and shows the number of active, received, and damped routes that are received from a neighbor. For example, Establ VPN-AB.inet.0: 2/4/0 indicates the following: <ul style="list-style-type: none"> • The BGP session is established. • Routes are received in the VPN-AB.inet.0 routing table. • The local routing device has two active routes, four received routes, and no damped routes from a BGP peer. <p>When a BGP session is established, the peers are exchanging update messages.</p>

**show bgp summary
(When a Peer Is Not
Established)**

```

user@host> show bgp summary
Groups: 2 Peers: 4 Down peers: 1
Table      Tot Paths  Act Paths Suppressed  History  Damp State  Pending
inet.0          6        4          0          0        0        0
Peer      AS      InPkt    OutPkt    OutQ    Flaps Last Up/Dwn
State|#Active/Received/Damped...
10.0.0.3      65002        86        90        0        2      42:54 0/0/0

0/0/0
10.0.0.4      65002        90        91        0        1      42:54 0/2/0

0/0/0
10.0.0.6      65002        87        90        0        3          3 Active
10.1.12.1     65001        89        89        0        1      42:54 4/4/0

0/0/0

```

**show bgp summary
(When a Peer Is
Established)**

```

user@host> show bgp summary
Groups: 1 Peers: 3 Down peers: 0
Table      Tot Paths  Act Paths Suppressed  History  Damp State  Pending
inet.0          6        4          0          0        0        0
Peer      AS      InPkt    OutPkt    OutQ    Flaps Last Up/Dwn
State|#Active/Received/Damped...
10.0.0.2      65002     88675     88652        0        2      42:38 2/4/0

0/0/0
10.0.0.3      65002     54528     54532        0        1     2w4d22h 0/0/0

0/0/0
10.0.0.4      65002     51597     51584        0        0     2w3d22h 2/2/0

0/0/0

```

**show bgp summary
(CLNS)**

```

user@host> show bgp summary
Groups: 1 Peers: 1 Down peers: 0
Peer      AS      InPkt    OutPkt    OutQ    Flaps Last Up/Dwn
State|#Active/Received/Damped...
10.245.245.1  200     1735     1737        0        0    14:26:12 Establ
  bgp.isovpn.0: 3/3/0
  aaaa.iso.0: 3/3/0

```

**show bgp summary
(Layer 2 VPN)**

```

user@host> show bgp summary
Groups: 1 Peers: 5 Down peers: 0
Table      Tot Paths  Act Paths Suppressed  History  Damp State  Pending
bgp.l2vpn.0    1        1          0          0        0        0
inet.0          0        0          0          0        0        0
Peer      AS      InPkt    OutPkt    OutQ    Flaps Last Up/Dwn
State|#Active/Received/Damped...
10.255.245.35  65299        72        74        0        1      19:00 Establ
  bgp.l2vpn.0: 1/1/0
  frame-vpn.l2vpn.0: 1/1/0
10.255.245.36  65299     2164     2423        0        4      19:50 Establ
  bgp.l2vpn.0: 0/0/0
  frame-vpn.l2vpn.0: 0/0/0
10.255.245.37  65299        36        37        0        4      17:07 Establ
  inet.0: 0/0/0
10.255.245.39  65299     138     168        0        6      53:48 Establ
  bgp.l2vpn.0: 0/0/0
  frame-vpn.l2vpn.0: 0/0/0

```

```

10.255.245.69 65299      134      140      0      6      53:42 Estab1
inet.0: 0/0/0

```

**show bgp summary
(Layer 3 VPN)**

```

user@host> show bgp summary
Groups: 2 Peers: 2 Down peers: 0
Table      Tot Paths  Act Paths  Suppressed  History Damp State Pending
bgp.l3vpn.0      2      2      0      0      0      0      0
Peer          AS      InPkt      OutPkt      OutQ      Flaps  Last Up/Dwn
State|#Active/Received/Damped...
10.39.1.5      2      21      22      0      0      6:26 Estab1
  VPN-AB.inet.0: 1/1/0
10.255.71.15   1      19      21      0      0      6:17 Estab1
  bgp.l3vpn.0: 2/2/0
  VPN-A.inet.0: 1/1/0
  VPN-AB.inet.0: 2/2/0
  VPN-B.inet.0: 1/1/0

```

show policy damping

Syntax	show policy damping <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show policy damping
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Border Gateway Protocol (BGP) route flap damping parameters.
Options	none—Display information about BGP route flap damping parameters. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Additional Information	In the output from this command, figure-of-merit values correlate to the probability of future instability of a routing device. Routes with higher figure-of-merit values are suppressed for longer periods of time. The figure-of-merit value decays exponentially over time. A figure-of-merit value of zero is assigned to each new route. The value is increased each time the route is withdrawn or readvertised, or when one of its path attributes changes.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • “Configuring BGP Flap Damping Parameters” in the <i>Junos OS Policy Framework Configuration Guide</i> • clear bgp damping on page 26 • show route damping on page 419
List of Sample Output	show policy damping on page 59
Output Fields	Table 16 on page 58 describes the output fields for the show policy damping command. Output fields are listed in the approximate order in which they appear.

Table 16: show policy damping Output Fields

Field Name	Field Description
Halflife	Decay half-life, in minutes. The value represents the period during which the accumulated figure-of-merit value is reduced by half if the route remains stable. If a route has flapped, but then becomes stable, the figure-of-merit value for the route decays exponentially. For example, for a route with a figure-of-merit value of 1500, if no incidents occur, its figure-of-merit value is reduced to 750 after 15 minutes and to 375 after another 15 minutes.

Table 16: show policy damping Output Fields (*continued*)

Field Name	Field Description
Reuse merit	Figure-of-merit value below which a suppressed route can be used again. A suppressed route becomes reusable when its figure-of-merit value decays to a value below a reuse threshold, and the route once again is considered usable and can be installed in the forwarding table and exported from the routing table.
Suppress/cutoff merit	Figure-of-merit value above which a route is suppressed for use or inclusion in advertisements. When a route's figure-of-merit value reaches a particular level, called the cutoff or suppression threshold, the route is suppressed. When a route is suppressed, the routing table no longer installs the route into the forwarding table and no longer exports this route to any of the routing protocols.
Maximum suppress time	Maximum hold-down time, in minutes. The value represents the maximum time that a route can be suppressed no matter how unstable it has been before this period of stability.
Computed values	<ul style="list-style-type: none"> • Merit ceiling—Maximum merit that a flapping route can collect. • Maximum decay—Maximum decay half-life, in minutes.

```

show policy damping    user@host> show policy damping
                          Default damping information:
                          Halflife: 15 minutes
                          Reuse merit: 750 Suppress/cutoff merit: 3000
                          Maximum suppress time: 60 minutes
                          Computed values:
                          Merit ceiling: 12110
                          Maximum decay: 6193
                          Damping information for "standard-damping":
                          Halflife: 10 minutes
                          Reuse merit: 4000 Suppress/cutoff merit: 8000
                          Maximum suppress time: 30 minutes
                          Computed values:
                          Merit ceiling: 32120
                          Maximum decay: 12453

```


ES-IS Operational Mode Commands

Table 17 on page 61 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the End System-to-Intermediate System (ES-IS) protocol. Commands are listed in alphabetical order.

Table 17: ES-IS Operational Mode Commands

Task	Command
Clear ES-IS adjacencies.	clear esis adjacency
Clear ES-IS statistics for packets sent or received.	clear esis statistics
Display ES-IS adjacencies.	show esis adjacency
Display ES-IS interfaces.	show esis interface
Display ES-IS statistics for packets sent or received.	show esis statistics



NOTE: ES-IS is supported only on J Series routers. For information about how to configure ES-IS, see the *J Series Services Router Basic LAN and WAN Access Configuration Guide* or the *Junos OS Routing Protocols Configuration Guide*.

clear esis adjacency

Syntax	<code>clear esis adjacency</code> <code><instance <i>instance-name</i>></code> <code><interface <i>interface-name</i>></code> <code><neighbor></code>
Release Information	Command introduced before Junos OS Release 7.4.
Description	(J Series routers only) Clear End System-to-Intermediate System (ES-IS) adjacencies.
Options	<p>none—Clear all ES-IS adjacencies.</p> <p>instance <i>instance-name</i>—(Optional) Clear adjacencies for the specified routing instance only.</p> <p>interface <i>interface-name</i>—(Optional) Clear adjacencies for the specified interface only.</p> <p>neighbor—(Optional) Clear adjacencies for the specified neighbor only.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show esis adjacency on page 64
List of Sample Output	clear esis adjacency on page 62
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear esis adjacency	<code>user@host> clear esis adjacency</code>

clear esis statistics

Syntax	clear esis statistics <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	(J Series routers only) Clear End System-to-Intermediate System (ES-IS) packet statistics.
Options	none—Clear ES-IS packet statistics for all routing instances. instance <i>instance-name</i> —(Optional) Clear ES-IS packet statistics for the specified routing instance only.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show esis statistics on page 68
List of Sample Output	clear esis statistics on page 63
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear esis statistics	user@host> clear esis statistics

show esis adjacency

Syntax	show esis adjacency <brief detail extensive> <esis-neighbor-id> <instance <i>instance-name</i> > <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	(J Series routers only) Display End System-to-Intermediate System (ES-IS) adjacencies.
Options	<p>none—(Same as brief) Display all ES-IS adjacencies.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>esis-neighbor-id—(Optional) Display adjacencies for the specified neighbor's network service access point (NSAP) only.</p> <p>instance <i>instance-name</i>—(Optional) Display adjacencies for the specified routing instance only.</p> <p>interface <i>interface-name</i>—(Optional) Display adjacencies for the specified interface only.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear esis adjacency on page 62
List of Sample Output	<p>show esis adjacency on page 65</p> <p>show esis adjacency brief on page 65</p> <p>show esis adjacency detail on page 65</p> <p>show esis adjacency extensive on page 65</p>
Output Fields	Table 18 on page 64 describes the output fields for the show esis adjacency command. Output fields are listed in the approximate order in which they appear.

Table 18: show esis adjacency Output Fields

Field Name	Field Description	Level of Output
Nbr Type	Type of network service access point (NSAP) of this neighbor.	brief none
NSAP/NET	NSAP of this neighbor.	All levels
Type	Type of NSAP of this neighbor.	detail extensive
Hold (secs)	Holdtime interval advertised by this neighbor.	brief none
Interface	Interface through which the neighbor is reachable.	All levels

Table 18: show esis adjacency Output Fields (*continued*)

Field Name	Field Description	Level of Output
Advertised holdtime	Holdtime interval advertised by this neighbor.	detail extensive
Expires in	How long until the adjacency expires, in seconds.	detail extensive
SNPA	Subnetwork point of attachment (MAC address of the neighbor).	detail extensive
Transition log	List of recent transitions. <ul style="list-style-type: none"> • When—Time of advertisement from this neighbor. • State—State of the adjacency: Up, Down, New, One-way, Initializing, or Rejected. • Event—Event causing the state. • Down reason—Reason the adjacency is down. 	extensive

```

show esis adjacency  user@host> show esis adjacency
                        Nbr   NSAP/NET                               Hold  Interface
                        Type                                     (secs)
IS    47.0005.80ff.f800.0000.0108.0001.0102.5501.6008    135 fe-0/0/0.0

```

show esis adjacency brief The output for the **show esis adjacency brief** command is identical to that for the **show esis adjacency** command. For sample output, see **show esis adjacency** on page 65.

```

show esis adjacency detail  user@host> show esis adjacency detail
NSAP/NET: 47.0005.80ff.f800.0000.0108.0001.0102.5501.6008, Type: IS
Interface: fe-0/0/0.0, Advertised hold time: 180 secs, Expires in: 173 secs
SNPA: 0:5:85:c1:73:71

```

```

show esis adjacency extensive user@host> show esis adjacency extensive
NSAP/NET: 47.0005.80ff.f800.0000.0108.0001.0102.5501.6008, Type: IS
Interface: fe-0/0/0.0, Advertised hold time: 180 secs, Expires in: 167 secs
SNPA: 0:5:85:c1:73:71
Transition log:
When           State      Event           Down reason
Sun Nov 26 22:07:35  Up        Received ISH

```

show esis interface

Syntax	show esis interface <brief detail extensive> <instance <i>instance-name</i> > <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	(J Series routers only) Display End System-to-Intermediate System (ES-IS) interface information.
Options	<p>none—(Same as brief) Display information for all configured ES-IS interfaces.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display configured interfaces for the specified routing instance only.</p> <p>interface <i>interface-name</i>—(Optional) Display information about the specified interface only.</p>
Required Privilege Level	view
List of Sample Output	<p>show esis interface on page 67</p> <p>show esis interface brief on page 67</p> <p>show esis interface detail on page 67</p> <p>show esis interface extensive on page 67</p>
Output Fields	Table 19 on page 66 describes the output fields for the show esis interface command. Output fields are listed in the approximate order in which they appear.

Table 19: show esis interface Output Fields

Field Name	Field Description	Level of Output
Interface	Interface through which the adjacency is made.	All levels
Receives	Types of hello messages that are received.	All levels
Sends	Types of hello messages that are sent.	All levels
Hello interval	Interface's hello interval, in seconds.	All levels
Adjacencies or Num Adj	Number of adjacencies established on this interface.	All levels
Holdtime	Interface's hold time, in seconds.	detail extensive
State	Internal implementation information.	detail extensive

Table 19: show esis interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
End system configuration timer	Time, in seconds, for the end system to configure itself for ES-IS.	detail extensive
Interface index	Index value.	detail extensive
NET used in hello	Network entity title used in hello messages.	detail extensive

show esis interface user@host> **show esis interface**

Interface	Receives	Sends	Hello Interval	Num Adj
fe-0/0/0.0	ISH	ISH	60.00	1
lo0.0	ISH	-	60.00	0

show esis interface brief The output for the **show esis interface brief** command is identical to that for the **show esis interface** command. For sample output, see **show esis interface** on page 67.

show esis interface detail user@host> **show esis interface detail**

```
Interface: fe-0/0/0.0
  Receives: ISH, Sends: ISH, Hello interval: 60.00
  Adjacencies: 1, Holdtime: 180, End system configuration timer: 180
  Interface index: 68, State: 0x2
  NET used in hello: 47.0005.80ff.f800.0000.0108.0001.0102.5501.6007

Interface: lo0.0
  Receives: ISH, Sends: - , Hello interval: 60.00
  Adjacencies: 0, Holdtime: 180, End system configuration timer: 180
  Interface index: 64, State: 0x2
  NET used in hello: 47.0005.80ff.f800.0000.0108.0001.0102.5501.6007
```

show esis interface extensive The output for the **show esis interface extensive** command is identical to that for the **show esis interface detail** command. For sample output, see **show esis interface detail** on page 67.

show esis statistics

Syntax	show esis statistics <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	(J Series routers only) Display End System-to-Intermediate System (ES-IS) packet statistics.
Options	none—Display ES-IS packet statistics for all routing instances. instance <i>instance-name</i> —(Optional) Display ES-IS statistics for the specified routing instance only.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear esis statistics on page 63
List of Sample Output	show esis statistics on page 68
Output Fields	Table 20 on page 68 describes the output fields for the show esis statistics command. Output fields are listed in the approximate order in which they appear.

Table 20: show esis statistics Output Fields

Field Name	Field Description
PDU type	Protocol data unit type.
Received	Number of PDUs received since IS-IS started or since the statistics were set to zero.
Processed	Number of PDUs received less the number dropped.
Drops	Number of PDUs dropped.
Sent	Number of PDUs transmitted since IS-IS started or since the statistics were set to zero.
Total packets received/sent	Total number of PDUs received and transmitted since IS-IS started or since the statistics were set to zero.

```

show esis statistics  user@host> show esis statistics
PDU type  Received  Processed  Drops    Sent
ESH              3           3         0         8
ISH             11          10         1         4
RD              0           0         0         0
Unknown         0           0         0         0

```

```
Totals          14          13          1          12
Total packets received: 14 sent: 0
```


CHAPTER 5

IP Multicast Operational Mode Commands

Table 21 on page 71 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot IP multicast. In the table, the commands are listed in alphabetical order.

Table 21: IP Multicast Operational Mode Commands

Task	Command
Clear Automatic Multicast Tunneling (AMT) protocol statistics.	<code>clear amt statistics</code>
Clear Automatic Multicast Tunneling (AMT) protocol state.	<code>clear amt tunnel</code>
Clear Internet Group Management Protocol (IGMP) group members.	<code>clear igmp membership</code>
Clear IGMP snooping membership information.	<code>clear igmp snooping membership</code>
Clear IGMP snooping statistics.	<code>clear igmp snooping statistics</code>
Clear IGMP statistics.	<code>clear igmp statistics</code>
Clear Multicast Listener Discovery (MLD) group members.	<code>clear mld membership</code>
Clear MLD statistics.	<code>clear mld statistics</code>
Clear Multicast Source Discovery Protocol (MSDP) source active cache.	<code>clear msdp cache</code>
Clear MSDP statistics.	<code>clear msdp statistics</code>
Clear multicast bandwidth admissions.	<code>clear multicast bandwidth-admission</code>
Clear multicast scope.	<code>clear multicast scope</code>

Table 21: IP Multicast Operational Mode Commands *(continued)*

Task	Command
Clear multicast sessions.	clear multicast sessions
Clear multicast snooping statistics.	clear multicast snooping statistics
Clear multicast statistics.	clear multicast statistics
Clear Pragmatic General Multicast (PGM) negative acknowledgments (NAKs).	clear pgm negative-acknowledgments
Clear PGM source-path messages.	clear pgm source-path-messages
Clear PGM statistics.	clear pgm statistics
Clear the Protocol Independent Multicast (PIM) join and prune states.	clear pim join
Redistribute PIM joins among available links.	clear pim join-distribution
Clear PIM register message counters.	clear pim register
Clear PIM statistics.	clear pim statistics
Rebalance multicast tunnel (MT) interfaces.	request pim multicast-tunnel rebalance
Display Automatic Multicast Tunneling (AMT) protocol tunnel statistics.	show amt statistics
Display summary information about the Automatic Multicast Tunneling (AMT) protocol.	show amt summary
Display information about the Automatic Multicast Tunneling (AMT) dynamic tunnels.	show amt tunnel
Display the status of interfaces on which Distance Vector Multicast Routing Protocol (DVMRP) is configured.	show dvmrp interfaces
Display DVMRP neighbors.	show dvmrp neighbors
Display DVMRP prefixes.	show dvmrp prefix
Display DVMRP prunes.	show dvmrp prunes
Display members of IGMP groups.	show igmp group
Display members of IGMP groups by interface.	show igmp interface

Table 21: IP Multicast Operational Mode Commands (*continued*)

Task	Command
Display IGMP snooping interface information.	show igmp snooping interface
Display IGMP snooping membership information.	show igmp snooping membership
Display IGMP snooping statistics.	show igmp snooping statistics
Display IGMP statistics.	show igmp statistics
Display members of MLD groups.	show mld group
Display members of MLD groups by interface.	show mld interface
Display MLD statistics.	show mld statistics
Display MSDP peers.	show msdp
Display multicast sources learned from MSDP.	show msdp source
Display the MSDP source-active cache.	show msdp source-active
Display MSDP statistics.	show msdp statistics
Display configuration information about IP multicast flow maps.	show multicast flow-map
Display multicast interface bandwidth information.	show multicast interface
Display multicast network configuration.	show multicast moinfo
Display entries in the multicast next-hop table.	show multicast next-hops
Display configuration information about PIM-to-IGMP message translation, also known as PIM-to-IGMP proxy.	show multicast pim-to-igmp-proxy
Display configuration information about PIM-to-MLD message translation, also known as PIM-to-MLD proxy.	show multicast pim-to-mld-proxy
Display entries in the multicast forwarding cache.	show multicast route
Display multicast reverse-path-forwarding calculations.	show multicast rpf
Display administratively scoped addresses.	show multicast scope
Display announced multicast sessions.	show multicast sessions
Display multicast snooping route.	show multicast snooping route
Display multicast snooping statistics.	show multicast snooping statistics

Table 21: IP Multicast Operational Mode Commands (*continued*)

Task	Command
Display multicast statistics.	show multicast statistics
Display most active multicast groups.	show multicast usage
Display sent or received NAKs.	show pgm negative-acknowledgments
Display PGM source-path messages.	show pgm source-path-messages
Display PGM statistics.	show pgm statistics
Display bootstrap routers.	show pim bootstrap
Display the status of interfaces on which PIM is configured.	show pim interfaces
Display PIM (*,*,RP) join and prune states.	show pim join
Display PIM data-driven multicast distribution trees (MDTs).	show pim mdt
Display PIM neighbors.	show pim neighbors
Display rendezvous points.	show pim rps
Display PIM source RPF state.	show pim source
Display PIM statistics.	show pim statistics
Display Session Announcement Protocol (SAP) addresses.	show sap listen
Test MSDP peers.	test msdp



NOTE: For information about the mtrace commands used to monitor IP multicast traffic in real time, see the *Junos System Basics and Services Command Reference*. For information about how to configure IP multicast, see the *Junos Multicast Protocols Configuration Guide*.

clear igmp membership

Syntax	clear igmp membership <group <i>address-range</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear igmp membership <group <i>address-range</i> > <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Internet Group Management Protocol (IGMP) group members.
Options	<p>none—Clear all IGMP members on all interfaces and for all address ranges.</p> <p>group <i>address-range</i>—(Optional) Clear all IGMP members that are in a particular address range. An example of a range is 224.2/16. If you omit the destination prefix length, the default is /32.</p> <p>interface <i>interface-name</i>—(Optional) Clear all IGMP group members on an interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show igmp group on page 111 • show igmp interface on page 115
List of Sample Output	clear igmp membership on page 75 clear igmp membership interface on page 76 clear igmp membership group on page 76
Output Fields	See show igmp group for an explanation of output fields.
clear igmp membership	The following sample output displays IGMP group information before and after the clear igmp membership command is entered:

```

user@host> show igmp group
Interface      Group           Last Reported   Timeout
so-0/0/0       224.2.127.253  10.1.128.1      186
so-0/0/0       224.2.127.254  10.1.128.1      186
so-0/0/0       239.255.255.255 10.1.128.1      187
so-0/0/0       224.1.127.255   10.1.128.1      188
loca1         224.0.0.6       (null)          0
loca1         224.0.0.5       (null)          0
loca1         224.2.127.254   (null)          0
loca1         239.255.255.255 (null)          0

```

```

local 224.0.0.2 (null) 0
local 224.0.0.13 (null) 0

```

```

user@host> clear igmp membership
Clearing Group Membership Info for so-0/0/0
Clearing Group Membership Info for so-1/0/0
Clearing Group Membership Info for so-2/0/0

```

```

user@host> show igmp group
Interface      Group          Last Reported  Timeout
local         224.0.0.6      (null)         0
local         224.0.0.5      (null)         0
local         224.2.127.254  (null)         0
local         239.255.255.255 (null)         0
local         224.0.0.2      (null)         0
local         224.0.0.13     (null)         0

```

clear igmp membership interface The following sample output displays IGMP group information before and after the **clear igmp membership interface** command is issued:

```

user@host> show igmp group
Interface      Group          Last Reported  Timeout
so-0/0/0       224.2.127.253  10.1.128.1     210
so-0/0/0       239.255.255.255 10.1.128.1     210
so-0/0/0       224.1.127.255   10.1.128.1     215
so-0/0/0       224.2.127.254   10.1.128.1     216
local          224.0.0.6       (null)         0
local          224.0.0.5       (null)         0
local          224.2.127.254   (null)         0
local          239.255.255.255 (null)         0
local          224.0.0.2       (null)         0
local          224.0.0.13      (null)         0

```

```

user@host> clear igmp membership interface so-0/0/0
Clearing Group Membership Info for so-0/0/0

```

```

user@host> show igmp group
Interface      Group          Last Reported  Timeout
local         224.0.0.6      (null)         0
local         224.0.0.5      (null)         0
local         224.2.127.254  (null)         0
local         239.255.255.255 (null)         0
local         224.0.0.2      (null)         0
local         224.0.0.13     (null)         0

```

clear igmp membership group The following sample output displays IGMP group information before and after the **clear igmp membership group** command is entered:

```

user@host> show igmp group
Interface      Group          Last Reported  Timeout
so-0/0/0       224.2.127.253  10.1.128.1     210
so-0/0/0       239.255.255.255 10.1.128.1     210
so-0/0/0       224.1.127.255   10.1.128.1     215
so-0/0/0       224.2.127.254   10.1.128.1     216
local          224.0.0.6       (null)         0
local          224.0.0.5       (null)         0
local          224.2.127.254   (null)         0

```

local	239.255.255.255	(null)	0
local	224.0.0.2	(null)	0
local	224.0.0.13	(null)	0

```
user@host> clear igmp membership group 239.225/16
Clearing Group Membership Range 239.225.0.0/16 on so-0/0/0
Clearing Group Membership Range 239.225.0.0/16 on so-1/0/0
Clearing Group Membership Range 239.225.0.0/16 on so-2/0/0
```

```
user@host> show igmp group
```

Interface	Group	Last Reported	Timeout
so-0/0/0	224.1.127.255	10.1.128.1	231
so-0/0/0	224.2.127.254	10.1.128.1	233
so-0/0/0	224.2.127.253	10.1.128.1	236
local	224.0.0.6	(null)	0
local	224.0.0.5	(null)	0
local	224.2.127.254	(null)	0
local	239.255.255.255	(null)	0
local	224.0.0.2	(null)	0
local	224.0.0.13	(null)	0

clear igmp snooping membership

Syntax	clear igmp snooping membership <group source <i>address</i> > <instance <i>instance-name</i> > <interface <i>interface-name</i> > <learning-domain <i>learning-domain-name</i> > <vlan-id <i>vlan-identifier</i> >
Release Information	Command introduced in Junos OS Release 8.5.
Description	Clear IP IGMP snooping membership information.
Options	<p>none—Clear IGMP snooping membership for all supported address families on all interfaces.</p> <p>group source <i>address</i>—(Optional) Clear IGMP snooping membership for the specified multicast group or source address.</p> <p>instance <i>instance-name</i>—(Optional) Clear IGMP snooping membership for the specified instance.</p> <p>interface <i>interface-name</i>—(Optional) Clear IGMP snooping membership on a specific interface.</p> <p>learning-domain <i>learning-domain-name</i>—(Optional) Perform this operation on all learning domains or on a particular learning domain.</p> <p>vlan-id <i>vlan-identifier</i>—(Optional) Perform this operation on a particular VLAN.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show igmp snooping membership on page 121
List of Sample Output	clear igmp snooping membership on page 79
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear igmp snooping membership	user@host> clear igmp snooping membership

clear igmp snooping statistics

Syntax	clear igmp snooping statistics <instance <i>instance-name</i> > <interface <i>interface-name</i> > <learning-domain (all <i>learning-domain-name</i>)> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in Junos OS Release 8.5.
Description	Clear IP IGMP snooping statistics.
Options	none—Clear IGMP snooping statistics for all supported address families on all interfaces. instance <i>instance-name</i> —(Optional) Clear IGMP snooping statistics for the specified instance. interface <i>interface-name</i> —(Optional) Clear IGMP snooping statistics on a specific interface. learning-domain (all <i>learning-domain-name</i>)—(Optional) Perform this operation on all learning domains or on a particular learning domain. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show igmp snooping statistics on page 124
List of Sample Output	clear igmp snooping statistics on page 80
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear igmp snooping statistics	user@host> clear igmp snooping statistics

clear igmp statistics

Syntax	clear igmp statistics <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear igmp statistics <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Internet Group Management Protocol (IGMP) statistics.
Options	none—Clear IGMP statistics on all interfaces. interface <i>interface-name</i> —(Optional) Clear IGMP statistics for the specified interface only. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show igmp statistics on page 127
List of Sample Output	clear igmp statistics on page 81
Output Fields	See show igmp statistics for an explanation of output fields.

clear igmp statistics The following sample output displays IGMP statistics information before and after the **clear igmp statistics** command is entered:

```

user@host> show igmp statistics
IGMP packet statistics for all interfaces
IGMP Message type      Received      Sent  Rx errors
Membership Query        8883         459      0
V1 Membership Report    0            0        0
DVMRP                   19784        35476     0
PIM V1                  18310         0         0
Cisco Trace             0            0         0
V2 Membership Report    0            0         0
Group Leave             0            0         0
Mtrace Response         0            0         0
Mtrace Request          0            0         0
Domain Wide Report      0            0         0
V3 Membership Report    0            0         0
Other Unknown types     0            0         0
IGMP v3 unsupported type 0            0         0
IGMP v3 source required for SSM 0            0         0
IGMP v3 mode not applicable for SSM 0            0         0

IGMP Global Statistics
Bad Length              0

```

```
Bad Checksum          0
Bad Receive If        0
Rx non-local          1227
```

```
user@host> clear igmp statistics
```

```
user@host> show igmp statistics
```

```
IGMP packet statistics for all interfaces
```

IGMP Message type	Received	Sent	Rx errors
Membership Query	0	0	0
V1 Membership Report	0	0	0
DVMRP	0	0	0
PIM V1	0	0	0
Cisco Trace	0	0	0
V2 Membership Report	0	0	0
Group Leave	0	0	0
Mtrace Response	0	0	0
Mtrace Request	0	0	0
Domain Wide Report	0	0	0
V3 Membership Report	0	0	0
Other Unknown types			0
IGMP v3 unsupported type			0
IGMP v3 source required for SSM			0
IGMP v3 mode not applicable for SSM			0
IGMP Global Statistics			
Bad Length	0		
Bad Checksum	0		
Bad Receive If	0		
Rx non-local	0		

clear mld membership

Syntax	clear mld membership <group <i>group-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear Multicast Listener Discovery (MLD) group membership.
Options	<p>none—Clear all MLD memberships.</p> <p><i>group group-name</i>—(Optional) Clear MLD membership for the specified group.</p> <p><i>interface interface-name</i>—(Optional) Clear MLD group membership for the specified interface.</p> <p><i>logical-system (all logical-system-name)</i>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show mld group on page 130
List of Sample Output	clear mld membership on page 83
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear mld membership	user@host> clear mld membership

clear mld statistics

Syntax	clear mld statistics <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear Multicast Listener Discovery (MLD) statistics.
Options	none—(Same as logical-system all) Clear MLD statistics for all interfaces. interface <i>interface-name</i> —(Optional) Clear MLD statistics for the specified interface. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show mld statistics on page 137
List of Sample Output	clear mld statistics on page 84
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear mld statistics	user@host> clear mld statistics

clear msdp cache

Syntax	clear msdp cache <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <peer <i>peer address</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear the entries in the Multicast Source Discovery Protocol (MSDP) source-active cache.
Options	<p>none—Clear entries in the MSDP source-active cache for all instances, logical systems, and peers.</p> <p>instance <i>instance-name</i>—(Optional) Clear entries for a specific MSDP instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>peer <i>peer-address</i>—(Optional) Clear the MSDP source-active cache entries learned from a specific peer.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show msdp source-active on page 144
List of Sample Output	clear msdp cache on page 85
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear msdp cache	user@host> clear msdp cache

clear msdp statistics

Syntax	clear msdp statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <peer <i>peer-address</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear Multicast Source Discovery Protocol (MSDP) peer statistics.
Options	none—Clear MSDP statistics for all peers. instance <i>instance-name</i> —(Optional) Clear statistics for the specified instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. peer <i>peer-address</i> —(Optional) Clear the statistics for the specified peer.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show msdp statistics on page 146
List of Sample Output	clear msdp statistics on page 86
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear msdp statistics	user@host> clear msdp statistics

clear multicast bandwidth-admission

Syntax	<pre>clear multicast bandwidth-admission <group <i>group-address</i>> <inet inet6> <instance <i>instance-name</i>> <interface <i>interface-name</i>> <source <i>source-address</i>></pre>
Release Information	<p>Command introduced in Junos OS Release 8.3.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.</p>
Description	Reapply IP multicast bandwidth admissions.
Options	<p>none—Reapply multicast bandwidth admissions for all IPv4 forwarding entries in the master routing instance.</p> <p><i>group group-address</i>—(Optional) Reapply multicast bandwidth admissions for the specified group.</p> <p>inet—(Optional) Reapply multicast bandwidth admission settings for IPv4 flows.</p> <p>inet6—(Optional) Reapply multicast bandwidth admission settings for IPv6 flows.</p> <p><i>instance instance-name</i>—(Optional) Reapply multicast bandwidth admission settings for the specified instance. If you do not specify an instance, the command applies to the master routing instance.</p> <p><i>interface interface-name</i>—(Optional) Examines the corresponding outbound interface in the relevant entries and acts as follows:</p> <ul style="list-style-type: none"> • If the interface is congested, and it was admitted previously, it is removed. • If the interface was rejected previously, the clear multicast bandwidth-admission command enables the interface to be admitted as long as enough bandwidth exists on the interface. • If you do not specify an interface, issuing the clear multicast bandwidth-admission command readmits any previously rejected interface for the relevant entries as long as enough bandwidth exists on the interface. <p>To manually reject previously admitted outbound interfaces, you must specify the interface.</p> <p><i>source source-address</i>—(Optional) Use with the group option to reapply multicast bandwidth admission settings for the specified (source, group) entry.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show multicast interface on page 150

List of Sample Output **clear multicast bandwidth-admission on page 88**

Output Fields When you enter this command, you are provided feedback on the status of your request.

clear multicast user@host> clear multicast bandwidth-admission
bandwidth-admission

clear multicast scope

Syntax	clear multicast scope <inet inet6> <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear multicast scope <inet inet6> <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 7.6. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 option introduced in Junos OS Release 10.0 for EX Series switches.
Description	Clear IP multicast scope statistics.
Options	<p>none—(Same as logical-system all) Clear multicast scope statistics.</p> <p>inet—(Optional) Clear multicast scope statistics for IPv4 family addresses.</p> <p>inet6—(Optional) Clear multicast scope statistics for IPv6 family addresses.</p> <p>interface <i>interface-name</i>—(Optional) Clear multicast scope statistics on a specific interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show multicast scope on page 168
List of Sample Output	clear multicast scope on page 89
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear multicast scope	user@host> clear multicast scope

clear multicast sessions

Syntax	clear multicast sessions <logical-system (all <i>logical-system-name</i>)> < <i>regular-expression</i> >
Syntax (EX Series Switch)	clear multicast sessions < <i>regular-expression</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear IP multicast sessions.
Options	none—(Same as logical-system all) Clear multicast sessions. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. <i>regular-expression</i> —(Optional) Clear only multicast sessions that contain the specified regular expression.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show multicast sessions on page 170
List of Sample Output	clear multicast sessions on page 90
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear multicast sessions	user@host> clear multicast sessions

clear multicast snooping statistics

Syntax	clear multicast snooping statistics <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in Junos OS Release 8.5.
Description	Clear IP multicast snooping statistics.
Options	<p>none—Clear multicast snooping statistics for all supported address families on all interfaces.</p> <p>instance <i>instance-name</i>—(Optional) Clear multicast snooping statistics for the specified instance.</p> <p>interface <i>interface-name</i>—(Optional) Clear multicast snooping statistics on a specific interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show multicast snooping statistics on page 175
List of Sample Output	clear multicast snooping statistics on page 91
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear multicast snooping statistics	user@host> clear multicast snooping statistics

clear multicast statistics

Syntax	clear multicast statistics <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear multicast statistics <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Clear IP multicast statistics.
Options	none—Clear multicast statistics for all supported address families on all interfaces. inet—(Optional) Clear multicast statistics for IPv4 family addresses. inet6—(Optional) Clear multicast statistics for IPv6 family addresses. instance <i>instance-name</i> —(Optional) Clear multicast statistics for the specified instance. interface <i>interface-name</i> —(Optional) Clear multicast statistics on a specific interface. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show multicast statistics on page 178
List of Sample Output	clear multicast statistics on page 92
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear multicast statistics	user@host> clear multicast statistics

clear pgm negative-acknowledgments

Syntax	clear pgm negative-acknowledgments
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear the Pragmatic General Multicast (PGM) negative acknowledgment (NAK) state received.
Options	This command has no options.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show pgm negative-acknowledgments on page 184
List of Sample Output	clear pgm negative-acknowledgments on page 93
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear pgm negative-acknowledgments	<pre>user@host> clear pgm negative-acknowledgments</pre>

clear pgm source-path-messages

Syntax	clear pgm source-path-messages
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear Pragmatic General Multicast (PGM) source-path messages.
Options	This command has no options.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show pgm source-path-messages on page 186
List of Sample Output	clear pgm source-path-messages on page 94
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear pgm source-path-messages	user@host> clear pgm source-path-messages

clear pgm statistics

Syntax	clear pgm statistics
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear Pragmatic General Multicast (PGM) statistics.
Options	This command has no options.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show pgm statistics on page 187
List of Sample Output	clear pgm statistics on page 95
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear pgm statistics	user@host> clear pgm statistics

clear pim join

Syntax	clear pim join <group-address> <inet inet6> <instance instance-name> <logical-system (all logical-system-name)>
Syntax (EX Series Switch)	clear pim join <group-address> <inet inet6> <instance instance-name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Clear the Protocol Independent Multicast (PIM) join and prune states.
Options	<p>none—Clear the PIM join and prune states for all groups, family addresses, and instances.</p> <p>group-address—(Optional) Clear the PIM join and prune states for a group address.</p> <p>inet inet6—(Optional) Clear the PIM join and prune states for IPv4 or IPv6 family addresses, respectively.</p> <p>instance instance-name—(Optional) Clear the join and prune states for a specific PIM-enabled routing instance.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The clear pim join command cannot be used to clear the PIM join and prune state on a backup Routing Engine when nonstop active routing is enabled.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show pim join on page 195
List of Sample Output	clear pim join on page 96
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear pim join	user@host> clear pim join

clear pim join-distribution

Syntax	clear pim join-distribution <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in Junos OS Release 10.0.
Description	<p>Redistribute the Protocol Independent Multicast (PIM) join states.</p> <p>You can find out if there are multiple paths available for a source (for example, an RP) with the output of the show pim source command.</p> <p>When you include the join-load-balance statement in the configuration, the PIM join states are distributed evenly on available equal-cost multipath links. When an upstream neighbor link fails, Junos OS redistributes the PIM join states to the remaining links. However, when new links are added or the failed link is restored, the existing PIM joins are not redistributed to the new link. New flows will be distributed to the new links. However, in a network without new joins and prunes, the new link is not used for multicast traffic. The clear pim join-distribution command redistributes the existing flows to the new upstream neighbors. Redistributing the existing flows causes traffic to be disrupted, so we recommend that you run the clear pim join-distribution command during a maintenance window.</p>
Options	<p>none—Redistribute the PIM join states for the default master instance.</p> <p>instance <i>instance-name</i>—(Optional) Redistribute the join states for a specific PIM-enabled routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The clear pim join-distribution command cannot be used to redistribute the PIM join states on a backup Routing Engine when nonstop active routing is enabled.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show pim neighbors on page 206 • show pim join on page 195 • join-load-balance in the <i>Multicast Protocols Configuration Guide</i>
List of Sample Output	clear pim join-distribution on page 98
Output Fields	When you enter this command, you are provided no feedback on the status of your request. You can enter the show pim join command before and after distributing the join state to verify the operation.

clear pim user@host> clear pim join-distribution
join-distribution

clear pim register

Syntax	clear pim register <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear pim register <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 7.6. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Clear Protocol Independent Multicast (PIM) register message counters.
Options	<p>none—Clear PIM register message counters for all family addresses, instances, and interfaces.</p> <p>inet inet6—(Optional) Clear PIM register message counters for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Clear register message counters for a specific PIM-enabled routing instance.</p> <p>interface <i>interface-name</i>—(Optional) Clear PIM register message counters for a specific interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The clear pim register command cannot be used to clear the PIM register state on a backup Routing Engine when nonstop active routing is enabled.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show pim statistics on page 217
List of Sample Output	clear pim register on page 99
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear pim register	user@host> clear pim register

clear pim statistics

Syntax	clear pim statistics <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear pim statistics <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Clear Protocol Independent Multicast (PIM) statistics.
Options	<p>none—Clear PIM statistics for all family addresses, instances, and interfaces.</p> <p>inet inet6—(Optional) Clear PIM statistics for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Clear statistics for a specific PIM-enabled routing instance.</p> <p>interface <i>interface-name</i>—(Optional) Clear PIM statistics for a specific interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The clear pim statistics command cannot be used to clear the PIM statistics on a backup Routing Engine when nonstop active routing is enabled.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> show pim statistics on page 217
List of Sample Output	clear pim statistics on page 100
Output Fields	See show pim statistics for an explanation of output fields.
clear pim statistics	<p>The following sample output displays PIM statistics before and after the clear pim statistics command is entered:</p> <pre> user@host> show pim statistics PIM statistics on all interfaces: PIM Message type Received Sent Rx errors Hello 0 0 0 Register 0 0 0 </pre>

```

Register Stop          0          0          0
Join Prune             0          0          0
Bootstrap              0          0          0
Assert                 0          0          0
Graft                  0          0          0
Graft Ack              0          0          0
Candidate RP           0          0          0
V1 Query               2111       4222       0
V1 Register            0          0          0
V1 Register Stop       0          0          0
V1 Join Prune          14200      13115     0
V1 RP Reachability     0          0          0
V1 Assert              0          0          0
V1 Graft               0          0          0
V1 Graft Ack           0          0          0
PIM statistics summary for all interfaces:
Unknown type           0
V1 Unknown type        0
Unknown Version        0
Neighbor unknown       0
Bad Length             0
Bad Checksum           0
Bad Receive If         0
Rx Intf disabled       2007
Rx V1 Require V2       0
Rx Register not RP     0
RP Filtered Source     0
Unknown Reg Stop       0
Rx Join/Prune no state 1040
Rx Graft/Graft Ack no state 0
...

```

```

user@host> clear pim statistics
user@host> show pim statistics
PIM statistics on all interfaces:
PIM Message type      Received      Sent  Rx errors
Hello                  0            0        0
Register               0            0        0
Register Stop          0            0        0
Join Prune             0            0        0
Bootstrap              0            0        0
Assert                 0            0        0
Graft                  0            0        0
Graft Ack              0            0        0
Candidate RP           0            0        0
V1 Query               1            0        0
V1 Register            0            0        0
...

```

request pim multicast-tunnel rebalance

Syntax	request pim multicast-tunnel rebalance <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	request pim multicast-tunnel rebalance <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 10.2. Command introduced in Junos OS Release 10.2 for EX Series switches.
Description	Rebalance the assignment of multicast tunnel encapsulation interfaces across available tunnel-capable PICs or across a configured list of tunnel-capable PICs. You can determine whether a rebalance is necessary by running the show pim interfaces instance <i>instance-name</i> command.
Options	none—Re-create and rebalance all tunnel interfaces for all routing instances. instance <i>instance-name</i> —Re-create and rebalance all tunnel interfaces for a specific instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	maintenance
Related Documentation	<ul style="list-style-type: none">• show pim interfaces on page 192• Load Balancing Multicast Tunnel Interfaces Among Available PICs in the <i>Junos Multicast Protocols Configuration Guide</i>
Output Fields	This command produces no output. To verify the operation of the command, run the show pim interface instance <i>instance-name</i> before and after running the request pim multicast-tunnel rebalance command.

show dvmrp interfaces

Syntax	show dvmrp interfaces <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about Distance Vector Multicast Routing Protocol (DVMRP)–enabled interfaces.
Options	none—(Same as logical-system all) Display information about DVMRP-enabled interfaces. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show dvmrp interfaces on page 104
Output Fields	Table 22 on page 103 describes the output fields for the show dvmrp interfaces command. Output fields are listed in the approximate order in which they appear.

Table 22: show dvmrp interfaces Output Fields

Field Name	Field Description
Interface	Name of the interface.
State	State of the interface: up or down .
Leaf	Whether the interface is a leaf (that is, whether it has no neighbors) or whether it has neighbors.
Metric	Interface metric: a value from 1 through 31.
Announce	Number of routes the interface is announcing.
Mode	DVMRP mode: <ul style="list-style-type: none"> • Forwarding—DVMRP does both the routing and the multicast data forwarding. • Unicast-routing—DVMRP does only the routing. Forwarding of the multicast data packets can be done by enabling PIM on the interface.

show dvmrp interfaces

user@host> show dvmrp interfaces

Interface	State	Leaf	Metric	Announce	Mode
fxp0.0	Up	N	1	4	Forwarding
fxp1.0	Up	N	1	4	Forwarding
fxp2.0	Up	N	1	3	Forwarding
lo0.0	Up	Y	1	0	Unicast-routing

show dvmrp neighbors

Syntax	show dvmrp neighbors <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about Distance Vector Multicast Routing Protocol (DVMRP) neighbors.
Options	<p>none—(Same as logical-system all) Display information about DVMRP neighbors.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show dvmrp neighbors on page 106
Output Fields	Table 23 on page 105 describes the output fields for the show dvmrp neighbors command. Output fields are listed in the approximate order in which they appear.

Table 23: show dvmrp neighbors Output Fields

Field Name	Field Description
Neighbor	Address of the neighboring DVMRP router.
Interface	Interface through which the neighbor is reachable.
Version	Version of DVMRP that the neighbor is running, in the format <i>majorminor</i> .
Flags	<p>Information about the neighbor:</p> <ul style="list-style-type: none"> • 1—One way. The local router has seen the neighbor, but the neighbor has not seen the local router. • G—Neighbor supports generation ID. • L—Neighbor is a leaf router. • M—Neighbor supports mtrace. • N—Neighbor supports netmask in prunes and grafts. • P—Neighbor supports pruning. • S—Neighbor supports SNMP.
Routes	Number of routes learned from the neighbor.
Timeout	How long until the DVMRP neighbor information times out, in seconds.
Transitions	Number of generation ID changes that have occurred since the local router learned about the neighbor.

```
show dvmrp neighbors user@host> show dvmrp neighbors
```

Neighbor	Interface	Version	Flags	Routes	Timeout	Transitions
192.168.1.1	ipip.0	3.255	PGM	3	28	1

show dvmrp prefix

Syntax	show dvmrp prefix <brief detail> <logical-system (all <i>logical-system-name</i>)> <prefix>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about Distance Vector Multicast Routing Protocol (DVMRP) prefixes.
Options	<p>none—Display standard information about all DVMRP prefixes.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>prefix—(Optional) Display information about specific prefixes.</p>
Required Privilege Level	view
List of Sample Output	<p>show dvmrp prefix on page 108</p> <p>show dvmrp prefix brief on page 108</p> <p>show dvmrp prefix detail on page 108</p>
Output Fields	Table 24 on page 107 describes the output fields for the show dvmrp prefix command. Output fields are listed in the approximate order in which they appear.

Table 24: show dvmrp prefix Output Fields

Field Name	Field Description	Level of Output
Prefix	DVMRP route.	All levels
Next hop	Next hop from which the route was learned.	All levels
Age	Last time that the route was refreshed.	All levels
<i>multicast-group</i>	Multicast group address.	detail
Prunes sent	Number of prunes sent to the multicast group.	detail
Grafts sent	Number of grafts sent to the multicast group.	detail
Cache lifetime	Lifetime of the group in the multicast cache, in seconds.	detail
Prune lifetime	Lifetime remaining and total lifetime of prunes, in seconds.	detail

```
show dvmprefix user@host> show dvmprefix
Prefix          Next hop      Age
10.38.0.0       /30 10.38.0.1 00:06:17
10.38.0.4       /30 10.38.0.5 00:06:13
10.38.0.8       /30 10.38.0.2 00:00:04
10.38.0.12      /30 10.38.0.6 00:00:04
10.255.14.114   /32 10.255.14.114 00:06:17
10.255.14.142   /32 10.38.0.2 00:00:04
10.255.14.144   /32 10.38.0.2 00:00:04
10.255.70.15    /32 10.38.0.6 00:00:04
192.168.14.0    /24 192.168.14.114 00:06:17
192.168.195.40 /30 192.168.195.41 00:06:17
192.168.195.92 /30 10.38.0.2 00:00:04
```

show dvmprefix brief The output for the **show dvmprefix brief** command is identical to that for the **show dvmprefix** command.

```
show dvmprefix user@host> show dvmprefix detail
detail Prefix          Next hop      Age
10.38.0.0       /30 10.38.0.1 00:06:28
10.38.0.4       /30 10.38.0.5 00:06:24
10.38.0.8       /30 10.38.0.2 00:00:15
10.38.0.12      /30 10.38.0.6 00:00:15
10.255.14.114   /32 10.255.14.114 00:06:28
10.255.14.142   /32 10.38.0.2 00:00:15
10.255.14.144   /32 10.38.0.2 00:00:15
10.255.70.15    /32 10.38.0.6 00:00:15
192.168.14.0    /24 192.168.14.114 00:06:28
192.168.195.40 /30 192.168.195.41 00:06:28
192.168.195.92 /30 10.38.0.2 00:00:15
```

show dvmrp prunes

Syntax	show dvmrp prunes <all rx tx> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about active Distance Vector Multicast Routing Protocol (DVMRP) prunes.
Options	<p>none—Display received and transmitted DVMRP prune information.</p> <p>all—(Optional) Display information about all received and transmitted prunes.</p> <p>rx—(Optional) Display information about received prunes.</p> <p>tx—(Optional) Display information about transmitted prunes.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show dvmrp prunes on page 109
Output Fields	Table 25 on page 109 describes the output fields for the show dvmrp prunes command. Output fields are listed in the approximate order in which they appear.

Table 25: show dvmrp prunes Output Fields

Field Name	Field Description
Group	Group address.
Source prefix	Prefix for the prune.
Timeout	How long until the prune message expires, in seconds.
Neighbor	Neighbor to which the prune was sent or from which the prune was received.

```

show dvmrp prunes  user@host> show dvmrp prunes
Group                Source prefix      Timeout Neighbor
224.0.1.1            128.112.0.0       /12    7077 192.168.1.1
224.0.1.32           160.0.0.0         /3     7087 192.168.1.1
224.2.123.4          136.0.0.0         /5     6955 192.168.1.1
224.2.127.1          129.0.0.0         /8     7046 192.168.1.1
224.2.135.86         128.102.128.0     /17    7071 192.168.1.1
224.2.135.86         129.0.0.0         /8     7074 192.168.1.1

```

```
224.2.135.86 130.0.0.0 /7 7071 192.168.1.1
...
```

show igmp group

Syntax	show igmp group <brief detail> <group-name> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show igmp group <brief detail> <group-name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Internet Group Management Protocol (IGMP) group membership information.
Options	none—Display standard information about membership for all IGMP groups. brief detail—(Optional) Display the specified level of output. group-name—(Optional) Display group membership for the specified IP address only. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear igmp membership on page 75
List of Sample Output	show igmp group (Include Mode) on page 112 show igmp group (Exclude Mode) on page 113 show igmp group brief on page 113 show igmp group detail on page 113
Output Fields	Table 26 on page 111 describes the output fields for the show igmp group command. Output fields are listed in the approximate order in which they appear.

Table 26: show igmp group Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface that received the IGMP membership report. A name of local indicates that the local routing device joined the group itself.	All levels
Group	Group address.	All levels
Group Mode	Mode the SSM group is operating in: Include or Exclude .	All levels
Source	Source address.	All levels

Table 26: show igmp group Output Fields (*continued*)

Field Name	Field Description	Level of Output
Source timeout	Time remaining until the group traffic is no longer forwarded. The timer is refreshed when a listener in include mode sends a report. A group in exclude mode or configured as a static group displays a zero timer.	detail
Last reported by	Address of the host that last reported membership in this group.	All levels
Timeout	Time remaining until the group membership is removed.	brief none
Group timeout	Time remaining until a group in exclude mode moves to include mode. The timer is refreshed when a listener in exclude mode sends a report. A group in include mode or configured as a static group displays a zero timer.	detail
Type	Type of group membership: <ul style="list-style-type: none"> • Dynamic—Host reported the membership. • Static—Membership is configured. 	All levels

```

show igmp group (Include Mode) user@host> show igmp group
Interface: t1-0/1/0.0
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.2
    Last reported by: 10.9.5.2
    Timeout: 24 Type: Dynamic
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.3
    Last reported by: 10.9.5.2
    Timeout: 24 Type: Dynamic
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.4
    Last reported by: 10.9.5.2
    Timeout: 24 Type: Dynamic
  Group: 232.1.1.2
    Group mode: Include
    Source: 10.0.0.4
    Last reported by: 10.9.5.2
    Timeout: 24 Type: Dynamic
Interface: t1-0/1/1.0
Interface: ge-0/2/2.0
Interface: ge-0/2/0.0
Interface: local
  Group: 224.0.0.2
    Source: 0.0.0.0
    Last reported by: Local
    Timeout: 0 Type: Dynamic
  Group: 224.0.0.22
    Source: 0.0.0.0
    Last reported by: Local
    Timeout: 0 Type: Dynamic

```

```

show igmp group (Exclude Mode) user@host> show igmp group
Interface: t1-0/1/0.0
Interface: t1-0/1/1.0
Interface: ge-0/2/2.0
Interface: ge-0/2/0.0
Interface: local
  Group: 224.0.0.2
    Source: 0.0.0.0
    Last reported by: Local
    Timeout: 0 Type: Dynamic
  Group: 224.0.0.22
    Source: 0.0.0.0
    Last reported by: Local
    Timeout: 0 Type: Dynamic

```

show igmp group brief The output for the **show igmp group brief** command is identical to that for the **show igmp group** command.

```

show igmp group detail user@host> show igmp group detail
Interface: t1-0/1/0.0
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.2
    Source timeout: 12
    Last reported by: 10.9.5.2
    Group timeout: 0 Type: Dynamic
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.3
    Source timeout: 12
    Last reported by: 10.9.5.2
    Group timeout: 0 Type: Dynamic
  Group: 232.1.1.1
    Group mode: Include
    Source: 10.0.0.4
    Source timeout: 12
    Last reported by: 10.9.5.2
    Group timeout: 0 Type: Dynamic
  Group: 232.1.1.2
    Group mode: Include
    Source: 10.0.0.4
    Source timeout: 12
    Last reported by: 10.9.5.2
    Group timeout: 0 Type: Dynamic
Interface: t1-0/1/1.0
Interface: ge-0/2/2.0
Interface: ge-0/2/0.0
Interface: local
  Group: 224.0.0.2
    Group mode: Exclude
    Source: 0.0.0.0
    Source timeout: 0
    Last reported by: Local
    Group timeout: 0 Type: Dynamic
  Group: 224.0.0.22
    Group mode: Exclude
    Source: 0.0.0.0
    Source timeout: 0

```

Last reported by: Local
Group timeout: 0 Type: Dynamic

show igmp interface

Syntax	show igmp interface <brief detail> <interface-name> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show igmp interface <brief detail> <interface-name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Internet Group Management Protocol (IGMP)-enabled interfaces.
Options	none—Display standard information about all IGMP-enabled interfaces. brief detail—(Optional) Display the specified level of output. <i>interface-name</i> —(Optional) Display information about the specified IGMP-enabled interface only. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear igmp membership on page 75
List of Sample Output	show igmp interface on page 117 show igmp interface brief on page 117 show igmp interface detail on page 117
Output Fields	Table 27 on page 115 describes the output fields for the show igmp interface command. Output fields are listed in the approximate order in which they appear.

Table 27: show igmp interface Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface.	All levels
State	State of the interface: Up or Down .	All levels
Querier	Address of the routing device that has been elected to send membership queries.	All levels
Timeout	How long until the IGMP querier is declared to be unreachable, in seconds.	All levels

Table 27: show igmp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Version	IGMP version being used on the interface: 1, 2, or 3.	All levels
Groups	Number of groups on the interface.	All levels
Immediate Leave	State of the immediate leave option: <ul style="list-style-type: none"> • On—Indicates that the router removes a host from the multicast group as soon as the router receives a leave group message from a host associated with the interface. • Off—Indicates that after receiving a leave group message, instead of removing a host from the multicast group immediately, the router sends a group query to determine if another receiver responds. 	All levels
Promiscuous Mode	State of the promiscuous mode option: <ul style="list-style-type: none"> • On—Indicates that the router can accept IGMP reports from subnetworks that are not associated with its interfaces. • Off—Indicates that the router can accept IGMP reports only from subnetworks that are associated with its interfaces. 	All levels
Passive	State of the passive mode option: <ul style="list-style-type: none"> • On—Indicates that the router can run IGMP on the interface but not send or receive control traffic such as IGMP reports, queries, and leaves. • Off—Indicates that the router can run IGMP on the interface and send or receive control traffic such as IGMP reports, queries, and leaves. <p>The passive statement enables you to selectively activate up to two out of a possible three available query or control traffic options. When enabled, the following options appear after the on state declaration:</p> <ul style="list-style-type: none"> • send-general-query—The interface sends general queries. • send-group-query—The interface sends group-specific and group-source-specific queries. • allow-receive—The interface receives control traffic 	All levels
OIF map	Name of the OIF map associated to the interface.	All levels
SSM map	Name of the source-specific multicast (SSM) map (if configured) used on the interface.	All levels
Configured Parameters	Information configured by the user: <ul style="list-style-type: none"> • IGMP Query Interval—Interval (in seconds) at which this router sends membership queries when it is the querier. • IGMP Query Response Interval—Time (in seconds) that the router waits for a report in response to a general query. • IGMP Last Member Query Interval—Time (in seconds) that the router waits for a report in response to a group-specific query. • IGMP Robustness Count—Number of times the router retries a query. 	All levels

Table 27: show igmp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Derived Parameters	Derived information: <ul style="list-style-type: none"> IGMP Membership Timeout—Timeout period (in seconds) for group membership. If no report is received for these groups before the timeout expires, the group membership is removed. IGMP Other Querier Present Timeout—Time (in seconds) that the router waits for the IGMP querier to send a query. 	All levels
show igmp interface	<pre> user@host> show igmp interface Interface: at-0/3/1.0 Querier: 10.111.30.1 State: Up Timeout: None Version: 2 Groups: 4 Interface: so-1/0/0.0 Querier: 10.111.10.1 State: Up Timeout: None Version: 2 Groups: 2 Interface: so-1/0/1.0 Querier: 10.111.20.1 State: Up Timeout: None Version: 2 Groups: 4 Immediate Leave: On Promiscuous Mode: Off Configured Parameters: IGMP Query Interval: 125.0 IGMP Query Response Interval: 10.0 IGMP Last Member Query Interval: 1.0 IGMP Robustness Count: 2 Derived Parameters: IGMP Membership Timeout: 260.0 IGMP Other Querier Present Timeout: 255.0 </pre>	
show igmp interface brief	The output for the show igmp interface brief command is identical to that for the show igmp interface command. For sample output, see show igmp interface on page 117.	
show igmp interface detail	The output for the show igmp interface detail command is identical to that for the show igmp interface command. For sample output, see show igmp interface on page 117.	

show igmp snooping interface

Syntax	show igmp snooping interface <i>interface-name</i> <brief detail> <bridge-domain <i>bridge-domain-name</i> > <virtual-switch <i>virtual-switch-name</i> > <vlan-id <i>vlan-identifier</i> >
Release Information	Command introduced in Junos OS Release 8.5.
Description	Display IGMP snooping interface information.
Options	<p>none—Display detailed information.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>bridge-domain <i>bridge-domain-name</i>—(Optional) Display information about a particular bridge domain.</p> <p>virtual-switch <i>virtual-switch-name</i>—(Optional) Display information about a particular virtual switch.</p> <p>vlan-id <i>vlan-identifier</i>—(Optional) Display information about a particular VLAN.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show igmp snooping membership on page 121 • show igmp snooping statistics on page 124
List of Sample Output	<p>show igmp snooping interface on page 119</p> <p>show igmp snooping interface (Group Limit Configured) on page 120</p>
Output Fields	Table 28 on page 118 lists the output fields for the show igmp snooping interface command. Output fields are listed in the approximate order in which they appear.

Table 28: show igmp snooping interface Output Fields

Field Name	Field Description	Level of Output
Routing-instance	Routing instance for IGMP snooping.	All levels
Learning Domain	Learning domain for snooping.	All levels
IGMP Query Interval	Frequency (in seconds) with which this router sends membership queries when it is the querier.	detail
IGMP Query Response Interval	Time (in seconds) that the router waits for a response to a general query.	detail

Table 28: show igmp snooping interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
IGMP Last Member Query Interval	Time (in seconds) that the router waits for a report in response to a group-specific query.	detail
IGMP Robustness Count	Number of times the router retries a query.	detail
immediate-leave	State of immediate leave: On or Off .	All levels
router-interface	Router interfaces that are part of this learning domain.	All levels
Group limit	Maximum number of (source,group) pairs allowed per interface. When a group limit is not configured, this field is not shown.	All levels
interface	Interfaces that are being snooped in this learning domain.	All levels
Groups	Number of groups on the interface.	none
State	State of the interface: Up or Down .	none
Up Groups	Number of active multicast groups attached to the logical interface.	All levels
IGMP Membeship Timeout	Timeout for group membership. If no report is received for these groups before the timeout expires, the group membership is removed.	none
IGMP Other Querier Present Timeout	Time that the router waits for the IGMP querier to send a query.	none

show igmp snooping interface user@host> show igmp snooping interface
Instance: bridge-domain bar

```

Learning-Domain: default
Interface: ge-0/1/0.200
  State:          Up Groups:      0
  Immediate leave: Off
  Router interface: yes
Interface: ge-0/1/2.200
  State:          Up Groups:      2
  Immediate leave: On
  Router interface: no
Interface: ge-0/1/3.200
  State:          Up Groups:      1
  Immediate leave: Off
  Router interface: no

```

```

Configured Parameters:
IGMP Query Interval: 130.0
IGMP Query Response Interval: 15.0
IGMP Last Member Query Interval: 2.0
IGMP Robustness Count: 3

```

```

Derived Parameters:

```

```
IGMP Membership Timeout: 405.0
IGMP Other Querier Present Timeout: 397.500
```

**show igmp snooping
interface (Group Limit
Configured)**

```
user@host> show igmp snooping interface instance vpls1
Instance: vpls1

Learning-Domain: default
Interface: ge-1/3/9.0
  State:          Up Groups:      0
  Immediate leave: Off
  Router interface: yes
Interface: ge-1/3/8.0
  State:          Up Groups:      0
  Immediate leave: Off
  Router interface: yes
  Group limit:    1000

Configured Parameters:
IGMP Query Interval: 125.0
IGMP Query Response Interval: 10.0
IGMP Last Member Query Interval: 1.0
IGMP Robustness Count: 2
```

show igmp snooping membership

Syntax	show igmp snooping membership <brief detail> <bridge-domain <i>bridge-domain-name</i> > <group <i>group-name</i> > <virtual-switch <i>virtual-switch-name</i> > <vlan-id <i>vlan-identifier</i> >
Release Information	Command introduced in Junos OS Release 8.5.
Description	Display IGMP snooping membership information.
Options	<p>none—Display detailed information.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>bridge-domain <i>bridge-domain-name</i>—(Optional) Display information about a particular bridge domain.</p> <p>group <i>group-name</i> —(Optional) Display information about this group address.</p> <p>virtual-switch <i>virtual-switch-name</i>—(Optional) Display information about a particular virtual switch.</p> <p>vlan-id <i>vlan-identifier</i>—(Optional) Display information about a particular VLAN.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show igmp snooping interface on page 118 • show igmp snooping statistics on page 124 • clear igmp snooping membership on page 79
List of Sample Output	<p>show igmp snooping membership on page 122</p> <p>show igmp snooping membership (Exclude Mode) on page 123</p> <p>show igmp snooping membership interface ge-0/1/2.200 on page 123</p> <p>show igmp snooping membership vlan-id 1 on page 123</p>
Output Fields	Table 29 on page 121 lists the output fields for the show igmp snooping membership command. Output fields are listed in the approximate order in which they appear.

Table 29: show igmp snooping membership Output Fields

Field Name	Field Description	Level of Output
Instance	Routing instance for IGMP snooping.	All levels
Learning Domain	Learning domain for snooping.	All levels
Interface	Interface on which this router is a proxy.	detail

Table 29: show igmp snooping membership Output Fields (*continued*)

Field Name	Field Description	Level of Output
Up Groups	Number of active multicast groups attached to the logical interface.	All levels
Group	Multicast group address in the membership database.	All levels
Group Mode	Mode the SSM group is operating in: Include or Exclude .	All levels
Source	Source address used on queries.	detail
Last reported by	Address of source last replying to the query.	detail
Group Timeout	Time remaining until a group in exclude mode moves to include mode. The timer is refreshed when a listener in exclude mode sends a report. A group in include mode or configured as a static group displays a zero timer.	All levels
Timeout	Length of time (in seconds) left until the entry is purged.	detail
Type	Way that the group membership information was learned: <ul style="list-style-type: none"> • Dynamic—Group membership was learned by the IGMP protocol. • Static—Group membership was learned by configuration. 	detail
Include receiver	Source address of receiver included in membership with timeout (in seconds).	detail

```

show igmp snooping membership
user@host> show igmp snooping membership
Instance: vpls2

Learning-Domain: vlan-id 2
Interface: ge-3/0/0.2
Up Groups:      0
Interface: ge-3/1/0.2
Up Groups:      0
Interface: ge-3/1/5.2
Up Groups:      0

Instance: vpls1

Learning-Domain: vlan-id 1
Interface: ge-3/0/0.1
Up Groups:      0
Interface: ge-3/1/0.1
Up Groups:      0
Interface: ge-3/1/5.1
Up Groups:      1
  Group: 225.10.10.1
    Group mode: Exclude
    Source: 0.0.0.0
    Last reported by: 100.6.85.2
    Group timeout:    173 Type: Dynamic

```



```

show igmp snooping      user@host> show igmp snooping membership
membership (Exclude    Instance: vpls2
Mode)                  Learning-Domain: vlan-id 2
                           Interface: ge-3/0/0.2
                           Up Groups:      0
                           Interface: ge-3/1/0.2
                           Up Groups:      0
                           Interface: ge-3/1/5.2
                           Up Groups:      0

                           Instance: vpls1

                           Learning-Domain: vlan-id 1
                           Interface: ge-3/0/0.1
                           Up Groups:      0
                           Interface: ge-3/1/0.1
                           Up Groups:      0
                           Interface: ge-3/1/5.1
                           Up Groups:      1
                               Group: 225.10.10.1
                                   Group mode: Exclude
                                   Source: 0.0.0.0
                                   Last reported by: 100.6.85.2
                                   Group timeout:      173 Type: Dynamic

show igmp snooping      user@host> show igmp snooping membership interface
membership interface    Instance: bridge-domain bar
ge-0/1/2.200           Learning-Domain: default
                           Interface: ge-0/1/2.200
                               Group: 225.1.1.1
                                   Source: 0.0.0.0
                                   Timeout:      391 Type: Static
                               Group: 232.1.1.1
                                   Source: 192.168.1.1
                                   Timeout:      0 Type: Static

show igmp snooping      user@host> show igmp snooping membership vlan-id 1
membership vlan-id 1    Instance: vpls2

                           Instance: vpls1

                           Learning-Domain: vlan-id 1
                           Interface: ge-3/0/0.1
                           Up Groups:      0
                           Interface: ge-3/1/0.1
                           Up Groups:      0
                           Interface: ge-3/1/5.1
                           Up Groups:      1
                               Group: 225.10.10.1
                                   Group mode: Exclude
                                   Source: 0.0.0.0
                                   Last reported by: 100.6.85.2
                                   Group timeout:      209 Type: Dynamic

```

show igmp snooping statistics

Syntax	show igmp snooping statistics <brief detail> <bridge-domain <i>bridge-domain-name</i> > <virtual-switch <i>virtual-switch-name</i> > <vlan-id <i>vlan-identifier</i> >
Release Information	Command introduced in Junos OS Release 8.5.
Description	Display IGMP snooping statistics.
Options	<p>none—(Optional) Display detailed information.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>bridge-domain <i>bridge-domain-name</i>—(Optional) Display information about a particular bridge domain.</p> <p>virtual-switch <i>virtual-switch-name</i>—(Optional) Display information about a particular virtual switch.</p> <p>vlan-id <i>vlan-identifier</i>—(Optional) Display information about a particular VLAN.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show igmp snooping interface on page 118 • show igmp snooping membership on page 121 • clear igmp snooping statistics on page 80
List of Sample Output	show igmp snooping statistics on page 125
Output Fields	Table 30 on page 124 lists the output fields for the show igmp snooping statistics command. Output fields are listed in the approximate order in which they appear.

Table 30: show igmp snooping statistics Output Fields

Field Name	Field Description	Level of Output
Routing-instance	Routing instance for IGMP snooping.	All levels
IGMP packet statistics	Heading for IGMP snooping statistics for all interfaces or for the specified interface.	All levels
learning-domain	Appears at end of “IGMP packets statistics” line.	All levels

Table 30: show igmp snooping statistics Output Fields (*continued*)

Field Name	Field Description	Level of Output
IGMP Message type	Summary of IGMP statistics: <ul style="list-style-type: none"> • Membership Query—Number of membership queries sent and received. • V1 Membership Report—Number of version 1 membership reports sent and received. • DVMRP—Number of DVMRP messages sent or received. • PIM V1—Number of PIM version 1 messages sent or received. • Cisco Trace—Number of Cisco trace messages sent or received. • V2 Membership Report—Number of version 2 membership reports sent or received. • Group Leave—Number of group leave messages sent or received. • Domain Wide Report—Number of domain-wide reports sent or received. • V3 Membership Report—Number of version 3 membership reports sent or received. • Other Unknown types—Number of unknown message types received. • IGMP v3 unsupported type—Number of messages received with unknown and unsupported IGMP version 3 message types. • IGMP v3 source required for SSM—Number of IGMP version 3 messages received that contained no source. • IGMP v3 mode not applicable for SSM—Number of IGMP version 3 messages received that did not contain a mode applicable for source-specific multicast (SSM). 	All levels
Received	Number of messages received.	All levels
Sent	Number of messages sent.	All levels
Rx errors	Number of received packets that contained errors.	All levels
IGMP Global Statistics	Summary of IGMP snooping statistics for all interfaces. <ul style="list-style-type: none"> • Bad Length—Number of messages received with length errors so severe that further classification could not occur. • Bad Checksum—Number of messages received with a bad IP checksum. No further classification was performed. • Rx non-local—Number of messages received from senders that are not local. 	All levels

```

show igmp snooping statistics  user@host> show igmp snooping statistics
                               Routing-instance foo

                               IGMP packet statistics for all interfaces in learning-domain vlan-100

                               IGMP Message type   Received   Sent   Rx errors
                               Membership Query      89        51        0
                               V1 Membership Report    0         0        0
                               DVMRP                 0         0        0
                               PIM V1                0         0        0
                               Cisco Trace            0         0        0
                               V2 Membership Report  139        0        0
                               Group Leave            0         0        0

```

Domain Wide Report	0	0	0
V3 Membership Report	136	0	0
Other Unknown types			0
IGMP v3 unsupported type			0
IGMP v3 source required for SSM			23
IGMP v3 mode not applicable for SSM			0

IGMP Global Statistics

Bad Length	0
Bad Checksum	0
Rx non-local	0

Routing-instance bar

IGMP packet statistics for all interfaces in learning-domain vlan-100

IGMP Message type	Received	Sent	Rx errors
Membership Query	89	51	0
V1 Membership Report	0	0	0
DVMRP	0	0	0
PIM V1	0	0	0
Cisco Trace	0	0	0
V2 Membership Report	139	0	0
Group Leave	0	0	0
Domain Wide Report	0	0	0
V3 Membership Report	136	0	0
Other Unknown types			0
IGMP v3 unsupported type			0
IGMP v3 source required for SSM			23
IGMP v3 mode not applicable for SSM			0

IGMP Global Statistics

Bad Length	0
Bad Checksum	0
Rx non-local	0

show igmp statistics

Syntax	show igmp statistics <brief detail> <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show igmp statistics <brief detail> <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Internet Group Management Protocol (IGMP) statistics.
Options	none—Display IGMP statistics for all interfaces. brief detail—(Optional) Display the specified level of output. interface <i>interface-name</i> —(Optional) Display IGMP statistics about the specified interface only. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear igmp statistics on page 81
List of Sample Output	show igmp statistics on page 128 show igmp statistics interface on page 129
Output Fields	Table 31 on page 127 describes the output fields for the show igmp statistics command. Output fields are listed in the approximate order in which they appear.

Table 31: show igmp statistics Output Fields

Field Name	Field Description
IGMP packet statistics	Heading for IGMP packet statistics for all interfaces or for the specified interface name.

Table 31: show igmp statistics Output Fields (*continued*)

Field Name	Field Description
IGMP Message type	<p>Summary of IGMP statistics:</p> <ul style="list-style-type: none"> • Membership Query—Number of membership queries sent and received. • V1 Membership Report—Number of version 1 membership reports sent and received. • DVMRP—Number of DVMRP messages sent or received. • PIM V1—Number of PIM version 1 messages sent or received. • Cisco Trace—Number of Cisco trace messages sent or received. • V2 Membership Report—Number of version 2 membership reports sent or received. • Group Leave—Number of group leave messages sent or received. • Mtrace Response—Number of Mtrace response messages sent or received. • Mtrace Request—Number of Mtrace request messages sent or received. • Domain Wide Report—Number of domain-wide reports sent or received. • V3 Membership Report—Number of version 3 membership reports sent or received. • Other Unknown types—Number of unknown message types received. • IGMP v3 unsupported type—Number of messages received with unknown and unsupported IGMP version 3 message types. • IGMP v3 source required for SSM—Number of IGMP version 3 messages received that contained no source. • IGMP v3 mode not applicable for SSM—Number of IGMP version 3 messages received that did not contain a mode applicable for source-specific multicast (SSM).
Received	Number of messages received.
Sent	Number of messages sent.
Rx errors	Number of received packets that contained errors.
IGMP Global Statistics	<p>Summary of IGMP statistics for all interfaces.</p> <ul style="list-style-type: none"> • Bad Length—Number of messages received with length errors so severe that further classification could not occur. • Bad Checksum—Number of messages received with a bad IP checksum. No further classification was performed. • Bad Receive If—Number of messages received on an interface not enabled for IGMP. • Rx non-local—Number of messages received from senders that are not local. • Timed out—Number of groups that timed out as a result of not receiving an explicit leave message. • Rejected Report—Number of reports dropped because of the IGMP group policy. • Total Interfaces—Number of interfaces configured to support IGMP.

```

show igmp statistics  user@host> show igmp statistics
IGMP packet statistics for all interfaces
IGMP Message type      Received      Sent  Rx errors
Membership Query        8883         459      0
V1 Membership Report     0            0      0
DVMRP                   0            0      0
PIM V1                  0            0      0
Cisco Trace             0            0      0
V2 Membership Report     0            0      0

```

Group Leave	0	0	0
Mtrace Response	0	0	0
Mtrace Request	0	0	0
Domain Wide Report	0	0	0
V3 Membership Report	0	0	0
Other Unknown types			0
IGMP v3 unsupported type			0
IGMP v3 source required for SSM			0
IGMP v3 mode not applicable for SSM			0
IGMP Global Statistics			
Bad Length	0		
Bad Checksum	0		
Bad Receive If	0		
Rx non-local	1227		
Timed out	0		
Rejected Report	0		
Total Interfaces	2		

```

user@host> show igmp statistics interface fe-1/0/1.0
show igmp statistics interface
IGMP interface packet statistics for fe-1/0/1.0
IGMP Message type      Received      Sent Rx errors
Membership Query        0            230         0
V1 Membership Report    0            0           0

```

show mld group

Syntax	show mld group <brief detail> <group-name> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about Multicast Listener Discovery (MLD) group membership.
Options	<p>none—Display standard information about all MLD groups.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>group-name—(Optional) Display MLD information about the specified group.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear mld membership on page 83
List of Sample Output	<p>show mld group (Include Mode) on page 131</p> <p>show mld group (Exclude Mode) on page 131</p> <p>show mld group brief on page 132</p> <p>show mld group detail (Include Mode) on page 132</p> <p>show mld group detail (Exclude Mode) on page 132</p>
Output Fields	Table 32 on page 130 describes the output fields for the show mld group command. Output fields are listed in the approximate order in which they appear.

Table 32: show mld group Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface that received the MLD membership report; local means that the local router joined the group itself.	All levels
Group	Group address.	All levels
Source	Source address.	All levels
Group Mode	Mode the SSM group is operating in: Include or Exclude .	All levels
Last reported by	Address of the host that last reported membership in this group.	All levels

Table 32: show mld group Output Fields (*continued*)

Field Name	Field Description	Level of Output
Source timeout	Time remaining until the group traffic is no longer forwarded. The timer is refreshed when a listener in include mode sends a report. A group in exclude mode or configured as a static group displays a zero timer.	detail
Timeout	Time remaining until the group membership is removed.	brief none
Group timeout	Time remaining until a group in exclude mode moves to include mode. The timer is refreshed when a listener in exclude mode sends a report. A group in include mode or configured as a static group displays a zero timer.	detail
Type	Type of group membership: <ul style="list-style-type: none"> • Dynamic—Host reported the membership. • Static—Membership is configured. 	All levels

```

show mld group      user@host> show mld group
(Include Mode)      Interface: fe-0/1/2.0
                        Group: ff02::1:ff05:1a67
                        Group mode: Include
                        Source: ::
                        Last reported by: fe80::2e0:81ff:fe05:1a67
                        Timeout:      245 Type: Dynamic
                        Group: ff02::1:ffa8:c35e
                        Group mode: Include
                        Source: ::
                        Last reported by: fe80::2e0:81ff:fe05:1a67
                        Timeout:      241 Type: Dynamic
                        Group: ff02::2:43e:d7f6
                        Group mode: Include
                        Source: ::
                        Last reported by: fe80::2e0:81ff:fe05:1a67
                        Timeout:      244 Type: Dynamic
                        Group: ff05::2
                        Group mode: Include
                        Source: ::
                        Last reported by: fe80::2e0:81ff:fe05:1a67
                        Timeout:      244 Type: Dynamic
                        Interface: local
                        Group: ff02::2
                        Source: ::
                        Last reported by: Local
                        Timeout:      0 Type: Dynamic
                        Group: ff02::16
                        Source: ::
                        Last reported by: Local
                        Timeout:      0 Type: Dynamic

```

```

show mld group      user@host> show mld group
(Exclude Mode)      Interface: ge-0/2/2.0
                        Interface: ge-0/2/0.0
                        Group: ff02::6
                        Source: ::
                        Last reported by: fe80::21f:12ff:feb6:4b3a
                        Timeout:      245 Type: Dynamic

```

```
Group: ff02::16
Source: ::
Last reported by: fe80::21f:12ff:feb6:4b3a
Timeout: 28 Type: Dynamic
Interface: local
Group: ff02::2
Source: ::
Last reported by: Local
Timeout: 0 Type: Dynamic
Group: ff02::16
Source: ::
Last reported by: Local
Timeout: 0 Type: Dynamic
```

show mld group brief The output for the **show mld group brief** command is identical to that for the **show mld group** command. For sample output, see **show mld group (Include Mode)** on page 131 and **show mld group (Exclude Mode)** on page 131.

**show mld group detail
(Include Mode)**

```
user@host> show mld group detail
Interface: fe-0/1/2.0
Group: ff02::1:ff05:1a67
Group mode: Include
Source: ::
Last reported by: fe80::2e0:81ff:fe05:1a67
Timeout: 224 Type: Dynamic
Group: ff02::1:ffa8:c35e
Group mode: Include
Source: ::
Last reported by: fe80::2e0:81ff:fe05:1a67
Timeout: 220 Type: Dynamic
Group: ff02::2:43e:d7f6
Group mode: Include
Source: ::
Last reported by: fe80::2e0:81ff:fe05:1a67
Timeout: 223 Type: Dynamic
Group: ff05::2
Group mode: Include
Source: ::
Last reported by: fe80::2e0:81ff:fe05:1a67
Timeout: 223 Type: Dynamic
Interface: so-1/0/1.0
Group: ff02::2
Group mode: Include
Source: ::
Last reported by: fe80::280:42ff:fe15:f445
Timeout: 258 Type: Dynamic
Interface: local
Group: ff02::2
Group mode: Include
Source: ::
Last reported by: Local
Timeout: 0 Type: Dynamic
Group: ff02::16
Source: ::
Last reported by: Local
Timeout: 0 Type: Dynamic
```

**show mld group detail
(Exclude Mode)**

```
user@host> show mld group detail
```

```
Interface: ge-0/2/2.0
Interface: ge-0/2/0.0
  Group: ff02::6
    Group mode: Exclude
    Source: ::
    Source timeout: 0
    Last reported by: fe80::21f:12ff:feb6:4b3a
    Group timeout: 226 Type: Dynamic
  Group: ff02::16
    Group mode: Exclude
    Source: ::
    Source timeout: 0
    Last reported by: fe80::21f:12ff:feb6:4b3a
    Group timeout: 246 Type: Dynamic
Interface: local
  Group: ff02::2
    Group mode: Exclude
    Source: ::
    Source timeout: 0
    Last reported by: Local
    Group timeout: 0 Type: Dynamic
  Group: ff02::16
    Group mode: Exclude
    Source: ::
    Source timeout: 0
    Last reported by: Local
    Group timeout: 0 Type: Dynamic
```

show mld interface

Syntax	show mld interface <brief detail> <interface-name> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about Multicast Listener Discovery (MLD)-enabled interfaces.
Options	<p>none—Display standard information about all MLD-enabled interfaces.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>interface-name—(Optional) Display information about the specified interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear mld membership on page 83
List of Sample Output	<p>show mld interface on page 135</p> <p>show mld interface brief on page 136</p> <p>show mld interface detail on page 136</p>
Output Fields	Table 33 on page 134 describes the output fields for the show mld interface command. Output fields are listed in the approximate order in which they appear.

Table 33: show mld interface Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface.	All levels
Querier	Address of the router that has been elected to send membership queries.	All levels
State	State of the interface: Up or Down .	All levels
Timeout	How long until the MLD querier is declared to be unreachable, in seconds.	All levels
Version	MLD version being used on the interface: 1 , 2 , or 3 .	All levels
Groups	Number of groups on the interface.	All levels

Table 33: show mld interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Passive	<p>State of the passive mode option:</p> <ul style="list-style-type: none"> • On—Indicates that the router can run IGMP or MLD on the interface but not send or receive control traffic such as IGMP or MLD reports, queries, and leaves. • Off—Indicates that the router can run IGMP or MLD on the interface and send or receive control traffic such as IGMP or MLD reports, queries, and leaves. <p>The passive statement enables you to selectively activate up to two out of a possible three available query or control traffic options. When enabled, the following options appear after the on state declaration:</p> <ul style="list-style-type: none"> • send-general-query—The interface sends general queries. • send-group-query—The interface sends group-specific and group-source-specific queries. • allow-receive—The interface receives control traffic 	All levels
OIF map	Name of the OIF map associated to the interface.	All levels
SSM map	Name of the source-specific multicast (SSM) map used on the interface, if configured.	All levels
Immediate Leave	<p>State of the immediate leave option:</p> <ul style="list-style-type: none"> • On—Indicates that the router removes a host from the multicast group as soon as the router receives a multicast listener done message from a host associated with the interface. • Off—Indicates that after receiving a multicast listener done message, instead of removing a host from the multicast group immediately, the router sends a group query to determine if another receiver responds. 	All levels
Configured Parameters	<p>Information configured by the user.</p> <ul style="list-style-type: none"> • MLD Query Interval (.1 secs)—Interval at which this router sends membership queries when it is the querier. • MLD Query Response Interval (.1 secs)—Time that the router waits for a report in response to a general query. • MLD Last Member Query Interval (.1 secs)—Time that the router waits for a report in response to a group-specific query. • MLD Robustness Count—Number of times the router retries a query. 	All levels
Derived Parameters	<p>Derived information.</p> <ul style="list-style-type: none"> • MLD Membership Timeout (.1 secs)—Timeout period for group membership. If no report is received for these groups before the timeout expires, the group membership will be removed. • MLD Other Querier Present Timeout (.1 secs)—Time that the router waits for the IGMP querier to send a query. 	All levels

```

show mld interface  user@host> show mld interface
                    Interface: fe-0/0/0
                    Querier: None

```

```

State: Up          Timeout:      0    Version:  1    Groups:    0
Interface: at-0/3/1.0
Querier: 8038::c0a8:c345
State: Up          Timeout:    None    Version:  1    Groups:    0
Interface: fe-1/0/1.0
Querier: ::192.168.195.73
State: Up          Timeout:    None    Version:  1    Groups:    3
SSM map: ipv6map1
Immediate Leave: On

```

```

Configured Parameters:
MLD Query Interval (.1 secs): 1250
MLD Query Response Interval (.1 secs): 100
MLD Last Member Query Interval (.1 secs): 10
MLD Robustness Count: 2

```

```

Derived Parameters:
MLD Membership Timeout (.1secs): 2600
MLD Other Querier Present Timeout (.1 secs): 2550

```

show mld interface brief The output for the **show mld interface brief** command is identical to that for the **show mld interface** command. For sample output, see **show mld interface** on page 135.

show mld interface detail The output for the **show mld interface detail** command is identical to that for the **show mld interface** command. For sample output, see **show mld interface** on page 135.

show mld statistics

Syntax	show mld statistics <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about Multicast Listener Discovery (MLD) statistics.
Options	none—Display MLD statistics for all interfaces. interface <i>interface-name</i> —(Optional) Display statistics about the specified interface. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear mld statistics on page 84
List of Sample Output	show mld statistics on page 138 show mld statistics interface on page 139
Output Fields	Table 34 on page 137 describes the output fields for the show mld statistics command. Output fields are listed in the approximate order in which they appear.

Table 34: show mld statistics Output Fields

Field Name	Field Description
Received	Number of received packets.
Sent	Number of transmitted packets.
Rx errors	Number of received packets that contained errors.

Table 34: show mld statistics Output Fields (*continued*)

Field Name	Field Description
MLD Message type	Summary of MLD statistics. <ul style="list-style-type: none"> • Listener Query (v1/v2)—Number of membership queries sent and received. • Listener Report (v1)—Number of version 1 membership reports sent and received. • Listener Done (v1/v2)—Number of Listener Done messages sent and received. • Listener Report (v2)—Number of version 2 membership reports sent and received. • Other Unknown types—Number of unknown message types received. • MLD v2 source required for SSM—Number of MLD version 2 messages received that contained no source. • MLD v2 mode not applicable for SSM—Number of MLD version 2 messages received that did not contain a mode applicable for source-specific multicast (SSM).
MLD Global Statistics	Summary of MLD statistics for all interfaces. <ul style="list-style-type: none"> • Bad Length—Number of messages received with length errors so severe that further classification could not occur. • Bad Checksum—Number of messages received with an invalid IP checksum. No further classification was performed. • Bad Receive If—Number of messages received on an interface not enabled for MLD. • Rx non-local—Number of messages received from nonlocal senders. • Timed out—Number of groups that timed out as a result of not receiving an explicit leave message. • Rejected Report—Number of reports dropped because of the MLD group policy. • Total Interfaces—Number of interfaces configured to support IGMP.

show mld statistics

```

user@host> show mld statistics
MLD packet statistics for all interfaces
MLD Message type      Received      Sent  Rx errors
Listener Query (v1/v2)    0            2      0
Listener Report (v1)      0            0      0
Listener Done (v1/v2)     0            0      0
Listener Report (v2)      0            0      0
Other Unknown types       0            0      0
MLD v2 source required for SSM  2
MLD v2 mode not applicable for SSM 0

MLD Global Statistics
Bad Length              0
Bad Checksum             0
Bad Receive If          0
Rx non-local             0
Timed out                0
Rejected Report          0
Total Interfaces         2

```



```
show mld statistics user@host> show mld statistics interface fe-1/0/1.0
interface MLD interface packet statistics for fe-1/0/1.0
MLD Message type      Received      Sent  Rx errors
Listener Query (v1/v2)      0          2      0
Listener Report (v1)        0          0      0
Listener Done (v1/v2)       0          0      0
Listener Report (v2)        0          0      0
Other Unknown types                0
MLD v2 source required for SSM      2
MLD v2 mode not applicable for SSM 0

MLD Global Statistics
Bad Length                    0
Bad Checksum                  0
Bad Receive If                0
Rx non-local                  0
Timed out                     0
Rejected Report               0
Total Interfaces              2
```

show msdp

Syntax	<pre>show msdp <brief detail> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <peer <i>peer-address</i>></pre>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display Multicast Source Discovery Protocol (MSDP) information.
Options	<p>none—Display standard MSDP information for all routing instances.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>peer <i>peer-address</i>—(Optional) Display information about the specified peer only,</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show msdp source on page 142 • show msdp source-active on page 144 • show msdp statistics on page 146
List of Sample Output	<p>show msdp on page 141</p> <p>show msdp brief on page 141</p> <p>show msdp detail on page 141</p>
Output Fields	Table 35 on page 140 describes the output fields for the show msdp command. Output fields are listed in the approximate order in which they appear.

Table 35: show msdp Output Fields

Field Name	Field Description	Level of Output
Peer address	IP address of the peer.	All levels
Local address	Local address of the peer.	All levels
State	Status of the MSDP connection: Listen , Established , or Inactive .	All levels
Last up/down	Time at which the most recent peer-state change occurred.	All levels
Peer-Group	Peer group name.	All levels

Table 35: show msdp Output Fields (*continued*)

Field Name	Field Description	Level of Output
SA Count	Number of source-active cache entries advertised by each peer that were accepted, compared to the number that were received, in the format <i>number-accepted/number-received</i> .	All levels
Peer Connect Retries	Number of peer connection retries.	detail
State timer expires	Number of seconds before another message is sent to a peer.	detail
Peer Times out	Number of seconds to wait for a response from the peer before the peer is declared unavailable.	detail
SA accepted	Number of entries in the source-active cache accepted from the peer.	detail
SA received	Number of entries in the source-active cache received by the peer.	detail

```

show msdp user@host> show msdp
Peer address Local address State Last up/down Peer-Group SA Count
198.32.8.193 198.32.8.195 Established 5d 19:25:44 North23 120/150
198.32.8.194 198.32.8.195 Established 3d 19:27:27 North23 300/345
198.32.8.196 198.32.8.195 Established 5d 19:39:36 North23 10/13
198.32.8.197 198.32.8.195 Established 5d 19:32:27 North23 5/6
198.32.8.198 198.32.8.195 Established 3d 19:33:04 North23 2305/3000

```

show msdp brief The output for the **show msdp brief** command is identical to that for the **show msdp** command. For sample output, see **show msdp** on page 141.

```

show msdp detail user@host> show msdp detail
Peer: 10.255.70.15
Local address: 10.255.70.19
State: Established
Peer Connect Retries: 0
State timer expires: 22
Peer Times out: 49
SA accepted: 0
SA received: 0

```

show msdp source

Syntax	show msdp source <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <source-address>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display multicast sources learned from Multicast Source Discovery Protocol (MSDP).
Options	none—Display standard MSDP source information for all routing instances. instance <i>instance-name</i> —(Optional) Display information for the specified instance only. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. source-address—(Optional) IP address and optional prefix length. Display information for the specified source address only.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• show msdp on page 140• show msdp source-active on page 144• show msdp statistics on page 146
List of Sample Output	show msdp source on page 143

Output Fields Table 36 on page 143 describes the output fields for the **show msdp source** command. Output fields are listed in the approximate order in which they appear.

Table 36: show msdp source Output Fields

Field Name	Field Description
Source address	IP address of the source.
/Len	Length of the prefix for this IP address.
Type	Discovery method for this multicast source: <ul style="list-style-type: none"> • Configured—Source-active limit explicitly configured for this source. • Dynamic—Source-active limit established when this source was discovered.
Maximum	Source-active limit applied to this source.
Threshold	Source-active threshold applied to this source.
Exceeded	Number of source-active messages received from this source exceeding the established maximum.

```

show msdp source user@host> show msdp source
Source address /Len Type Maximum Threshold Exceeded
0.0.0.0 /0 Configured 5 none 0
10.1.0.0 /16 Configured 500 none 0
10.1.1.1 /32 Configured 10000 none 0
10.1.1.2 /32 Dynamic 6936 none 0
10.1.5.5 /32 Dynamic 500 none 123
10.2.1.1 /32 Dynamic 2 none 0

```

show msdp source-active

Syntax	<code>show msdp source-active</code> <code><brief detail></code> <code><group <i>group</i>></code> <code><instance <i>instance-name</i>></code> <code><local></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><originator <i>originator</i>></code> <code><peer <i>peer-address</i>></code> <code><source <i>source-address</i>></code>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display the Multicast Source Discovery Protocol (MSDP) source-active cache.
Options	<p><code>none</code>—Display standard MSDP source-active cache information for all routing instances.</p> <p><code>brief detail</code>—(Optional) Display the specified level of output.</p> <p><code>group <i>group</i></code>—(Optional) Display source-active cache information for the specified group.</p> <p><code>instance <i>instance-name</i></code>—(Optional) Display information for the specified instance.</p> <p><code>local</code>—(Optional) Display all source-active caches originated by this router.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><code>originator <i>originator</i></code>—(Optional) Display information about the peer that originated the source-active cache entries.</p> <p><code>peer <i>peer-address</i></code>—(Optional) Display the source-active cache of the specified peer.</p> <p><code>source <i>source-address</i></code>—(Optional) Display the source-active cache of the specified source.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• show msdp on page 140• show msdp source on page 142• show msdp statistics on page 146
List of Sample Output	<ul style="list-style-type: none">• show msdp source-active on page 145• show msdp source-active brief on page 145• show msdp source-active detail on page 145
Output Fields	Table 37 on page 145 describes the output fields for the show msdp source-active command. Output fields are listed in the approximate order in which they appear.

Table 37: show msdp source-active Output Fields

Field Name	Field Description
Group address	Multicast address of the group.
Source address	IP address of the source.
Peer address	IP address of the peer.
Originator	Address of the rendezvous point (RP) that originated the message.
Flags	Flags: Accept, Reject, or Filtered.

**show msdp
source-active**

user@host> show msdp source-active

Group address	Source address	Peer address	Originator	Flags
230.0.0.0	192.168.195.46	local	10.255.14.30	Accept
230.0.0.1	192.168.195.46	local	10.255.14.30	Accept
230.0.0.2	192.168.195.46	local	10.255.14.30	Accept
230.0.0.3	192.168.195.46	local	10.255.14.30	Accept
230.0.0.4	192.168.195.46	local	10.255.14.30	Accept

**show msdp
source-active brief**

The output for the **show msdp source-active brief** command is identical to that for the **show msdp source-active** command. For sample output, see **show msdp source-active** on page 145.

**show msdp
source-active detail**

The output for the **show msdp source-active detail** command is identical to that for the **show msdp source-active** command. For sample output, see **show msdp source-active** on page 145.

show msdp statistics

Syntax	show msdp statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <peer <i>peer-address</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display statistics about Multicast Source Discovery Protocol (MSDP) peers.
Options	<p>none—Display statistics about all MSDP peers for all routing instances.</p> <p>instance <i>instance-name</i>—(Optional) Display statistics about a specific MSDP instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>peer <i>peer-address</i>—(Optional) Display statistics about a particular MSDP peer.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear msdp statistics on page 86
List of Sample Output	show msdp statistics on page 147
Output Fields	Table 38 on page 146 describes the output fields for the show msdp statistics command. Output fields are listed in the approximate order in which they appear.

Table 38: show msdp statistics Output Fields

Field Name	Field Description
Global active source limit exceeded	Number of times all peers have exceeded configured active source limits.
Peer	Address of peer.
Last State Change	How long ago the peer state changed.
Last message received from the peer	How long ago the last message was received from the peer.
RPF Failures	Number of reverse path forwarding (RPF) failures.
Remote Closes	Number of times the remote peer closed.
Peer Timeouts	Number of peer timeouts.
SA messages sent	Number of source-active messages sent.

Table 38: show msdp statistics Output Fields (*continued*)

Field Name	Field Description
SA messages received	Number of source-active messages received.
SA request messages sent	Number of source-active request messages sent.
SA request messages received	Number of source-active request messages received.
SA response messages sent	Number of source-active response messages sent.
SA response messages received	Number of source-active response messages received.
Active source exceeded	Number of times this peer has exceeded configured source-active limits.
Keepalive messages sent	Number of keepalive messages sent.
Keepalive messages received	Number of keepalive messages received.
Unknown messages received	Number of unknown messages received.
Error messages received	Number of error messages received.

show msdp statistics

```

user@host> show msdp statistics
Global active source exceeded: 0

Peer: 10.255.245.39
Last State Change: 11:54:49 (00:24:59)
Last message received from peer: 11:53:32 (00:26:16)
RPF Failures: 0
Remote Closes: 0
Peer Timeouts: 0
SA messages sent: 376
SA messages received: 459
SA request messages sent: 0
SA request messages received: 0
SA response messages sent: 0
SA response messages received: 0
Active source exceeded: 0
Keepalive messages sent: 17
Keepalive messages received: 19
Unknown messages received: 0
Error messages received: 0

```

show multicast flow-map

Syntax	show multicast flow-map <brief detail> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show multicast flow-map <brief detail>
Release Information	Command introduced in Junos OS Release 8.2. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display configuration information about IP multicast flow maps.
Options	none—Display configuration information about IP multicast flow maps on all systems. brief detail—(Optional) Display the specified level of output. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show multicast flow-map on page 149 show multicast flow-map detail on page 149
Output Fields	Table 39 on page 148 describes the output fields for the show multicast flow-map command. Output fields are listed in the approximate order in which they appear.

Table 39: show multicast flow-map Output Fields

Field Name	Field Description	Levels of Output
Name	Name of the flow map.	All levels
Policy	Name of the policy associated with the flow map.	All levels
Cache-timeout	Cache timeout value assigned to the flow map.	All levels
Bandwidth	Bandwidth setting associated to the flow map.	All levels
Adaptive	Whether or not adaptive mode is enabled for the flow map.	none
Flow-map	Name of the flow map.	detail
Adaptive Bandwidth	Whether or not adaptive mode is enabled for the flow map.	detail
Redundant Sources	Redundant sources defined for the same destination group.	detail

```
show multicast flow-map user@host> show multicast flow-map
Instance: master
Name Policy Cache timeout Bandwidth Adaptive
map2 policy2 never 2000000 no
map1 policy1 60 seconds 2000000 no

show multicast flow-map detail user@host> show multicast flow-map detail
Instance: master
Flow-map: map1
Policy: policy1
Cache Timeout: 600 seconds
Bandwidth: 2000000
Adaptive Bandwidth: yes
Redundant Sources: 11.11.11.11
Redundant Sources: 11.11.11.12
Redundant Sources: 11.11.11.13
```

show multicast interface

Syntax	show multicast interface <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show multicast interface
Release Information	Command introduced in Junos OS Release 8.3. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display bandwidth information about IP multicast interfaces.
Options	none—Display all interfaces that have multicast configured. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show multicast interface on page 151
Output Fields	Table 40 on page 150 describes the output fields for the show multicast interface command. Output fields are listed in the approximate order in which they appear.

Table 40: show multicast interface Output Fields

Field Name	Field Description
Interface	Name of the multicast interface.
Maximum bandwidth (bps)	Maximum bandwidth setting, in bits per second, for this interface.
Remaining bandwidth (bps)	Amount of bandwidth, in bits per second, remaining on the interface.
Mapped bandwidth deduction (bps)	Amount of bandwidth, in bits per second, used by any flows that are mapped to the interface. NOTE: Adding the mapped bandwidth deduction value to the local bandwidth deduction value results in the total deduction value for the interface. This field does not appear in the output when the no QoS adjustment feature is disabled.
Local bandwidth deduction (bps)	Amount of bandwidth, in bits per second, used by any mapped flows that are traversing the interface. NOTE: Adding the mapped bandwidth deduction value to the local bandwidth deduction value results in the total deduction value for the interface. This field does not appear in the output when the no QoS adjustment feature is disabled.

Table 40: show multicast interface Output Fields (*continued*)

Field Name	Field Description
Reverse OIF mapping	State of the reverse OIF mapping feature (on or off). NOTE: This field does not appear in the output when the no QoS adjustment feature is disabled.
Reverse OIF mapping no QoS adjustment	State of the no QoS adjustment feature (on or off) for interfaces that are using reverse OIF mapping. NOTE: This field does not appear in the output when the no QoS adjustment feature is disabled.
Leave timer	Amount of time a mapped interface remains active after the last mapping ends. NOTE: This field does not appear in the output when the no QoS adjustment feature is disabled.
No QoS adjustment	State (on) of the no QoS adjustment feature when this feature is enabled. NOTE: This field does not appear in the output when the no QoS adjustment feature is disabled.

**show multicast
interface**

user@host> show multicast interface

Interface	Maximum bandwidth (bps)	Remaining bandwidth (bps)
fe-0/0/3	10000000	0
fe-0/0/3.210	10000000	-2000000
fe-0/0/3.220	100000000	100000000
fe-0/0/3.230	20000000	18000000
fe-0/0/2.200	100000000	100000000

show multicast mrinfo

Syntax	show multicast mrinfo <host>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display configuration information about IP multicast networks, including neighboring multicast router addresses.
Options	none—Display configuration information about all multicast networks. host—(Optional) Display configuration information about a particular host. Replace <i>host</i> with a hostname or IP address.
Required Privilege Level	view
List of Sample Output	show multicast mrinfo on page 153
Output Fields	Table 41 on page 152 describes the output fields for the show multicast mrinfo command. Output fields are listed in the approximate order in which they appear.

Table 41: show multicast mrinfo Output Fields

Field Name	Field Description
<i>source-address</i>	Query address, hostname (DNS name or IP address of the source address), and multicast protocol version or the software version of another vendor.
<i>ip-address-1—>ip-address-2</i>	Queried router interface address and directly attached neighbor interface address, respectively.
<i>(name or ip-address)</i>	Name or IP address of neighbor.
<i>[metric/threshold/type/flags]</i>	Neighbor's multicast profile: <ul style="list-style-type: none"> metric—Always has a value of 1, because mrinfo queries the directly connected interfaces of a device. threshold—Multicast threshold time-to-live (TTL). The range of values is 0 through 255. type—Multicast connection type: pim or tunnel. flags—Flags for this route: <ul style="list-style-type: none"> querier—Queried router is the designated router for the neighboring session. leaf—Link is a leaf in the multicast network. down—Link status indicator.

```
show multicast mrinfo  user@host> show multicast mrinfo 10.35.4.1
10.35.4.1 (10.35.4.1) [version 12.0]:
  192.168.195.166 -> 0.0.0.0 (local) [1/0/pim/querier/leaf]
  10.38.20.1 -> 0.0.0.0 (local) [1/0/pim/querier/leaf]
  10.47.1.1 -> 10.47.1.2 (10.47.1.2) [1/5/pim]
  0.0.0.0 -> 0.0.0.0 (local) [1/0/pim/down]
```

show multicast next-hops

Syntax	show multicast next-hops <brief detail> <identifier-number> <inet inet6> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show multicast next-hops <brief detail> <identifier-number> <inet inet6>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 option introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display the entries in the IP multicast next-hop table.
Options	<p>none—Display standard information about all entries in the multicast next-hop table for all supported address families.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>identifier-number—(Optional) Show a particular next hop by ID number. The range of values is 1 through 65,535.</p> <p>inet inet6—(Optional) Display entries for IPv4 or IPv6 family addresses, respectively.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show multicast next-hops on page 155</p> <p>show multicast next-hops brief on page 155</p> <p>show multicast next-hops detail on page 155</p>
Output Fields	Table 42 on page 154 describes the output fields for the show multicast next-hops command. Output fields are listed in the approximate order in which they appear.

Table 42: show multicast next-hops Output Fields

Field Name	Field Description
ID	Next-hop identifier of the prefix. The identifier is returned by the routing device's Packet Forwarding Engine.
Refcnt	Number of cache entries that are using this next hop.
KRefCount	Kernel reference count for the next hop.

Table 42: show multicast next-hops Output Fields (*continued*)

Field Name	Field Description
Downstream interface	Interface names associated with each multicast next-hop ID.

```

show multicast next-hops user@host> show multicast next-hops
Family: INET
ID      Refcount  KRefcount Downstream interface
262142      4          2 so-1/0/0.0
262143      2          1 mt-1/1/0.49152
262148      2          1 mt-1/1/0.32769

Family: INET6

```

show multicast next-hops brief The output for the **show multicast next-hops brief** command is identical to that for the **show multicast next-hops** command. For sample output, see **show multicast next-hops** on page 155.

show multicast next-hops detail The output for the **show multicast next-hops detail** command is identical to that for the **show multicast next-hops** command. For sample output, see **show multicast next-hops** on page 155.

show multicast pim-to-igmp-proxy

Syntax	show multicast pim-to-igmp-proxy <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show multicast pim-to-igmp-proxy <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 9.6. Command introduced in Junos OS Release 9.6 for EX Series switches. instance option introduced in Junos OS Release 10.0. instance option introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display configuration information about PIM-to-IGMP message translation, also known as PIM-to-IGMP proxy.
Options	none—Display configuration information about PIM-to-IGMP message translation for all routing instances. instance <i>instance-name</i> —(Optional) Display configuration information about PIM-to-IGMP message translation for a specific multicast instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show multicast pim-to-igmp-proxy on page 156 show multicast pim-to-igmp-proxy instance on page 157
Output Fields	Table 43 on page 156 describes the output fields for the show multicast pim-to-igmp-proxy command. Output fields are listed in the order in which they appear.
Table 43: show multicast pim-to-igmp-proxy Output Fields	
Field Name	Field Description
Proxy state	State of PIM-to-IGMP message translation, also known as PIM-to-IGMP proxy, on the configured upstream interfaces: enabled or disabled .
<i>interface-name</i>	Name of upstream interface (no more than two allowed) on which PIM-to-IGMP message translation is configured.
show multicast pim-to-igmp-proxy	user@host> show multicast pim-to-igmp-proxy Instance: master Proxy state: enabled ge-0/1/0.1 ge-0/1/0.2

```
show multicast pim-to-igmp-proxy instance VPN-A
Instance: VPN-A Proxy state: enabled
ge-0/1/0.1
```

show multicast pim-to-mld-proxy

Syntax	show multicast pim-to-mld-proxy <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show multicast pim-to-mld-proxy <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 9.6. Command introduced in Junos OS Release 9.6 for EX Series switches. instance option introduced in Junos OS Release 10.0. instance option introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display configuration information about PIM-to-MLD message translation, also known as PIM-to-MLD proxy.
Options	none—Display configuration information about PIM-to-MLD message translation for all routing instances. instance <i>instance-name</i> —(Optional) Display configuration information about PIM-to-MLD message translation for a specific multicast instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show multicast pim-to-mld-proxy on page 158 show multicast pim-to-mld-proxy instance on page 159
Output Fields	Table 44 on page 158 describes the output fields for the show multicast pim-to-mld-proxy command. Output fields are listed in the order in which they appear.
Table 44: show multicast pim-to-mld-proxy Output Fields	
Field Name	Field Description
Proxy state	State of PIM-to-MLD message translation, also known as PIM-to-MLD proxy, on the configured upstream interfaces: enabled or disabled .
<i>interface-name</i>	Name of upstream interface (no more than two allowed) on which PIM-to-MLD message translation is configured.
show multicast pim-to-mld-proxy	user@host> show multicast pim-to-mld-proxy Instance: master Proxy state: enabled ge-0/5/0.1 ge-0/5/0.2

```
show multicast      user@host> show multicast pim-to-mld-proxy instance VPN-A
pim-to-mld-proxy    Instance: VPN-A Proxy state: enabled
instance            ge-0/5/0.1
```

show multicast route

Syntax	<code>show multicast route</code> <code><brief detail extensive></code> <code><active all inactive></code> <code><group <i>group</i>></code> <code><inet inet6></code> <code><instance <i>instance name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><regular-expression></code> <code><source-prefix <i>source-prefix</i>></code>
Syntax (EX Series Switch)	<code>show multicast route</code> <code><brief detail extensive></code> <code><active all inactive></code> <code><group <i>group</i>></code> <code><inet inet6></code> <code><instance <i>instance name</i>></code> <code><regular-expression></code> <code><source-prefix <i>source-prefix</i>></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display the entries in the IP multicast forwarding table. You can display similar information with the show route table inet.1 command.
Options	<p>none—Display standard information about all entries in the multicast forwarding table for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>active all inactive—(Optional) Display all active entries, all entries, or all inactive entries, respectively, in the multicast forwarding table.</p> <p>group <i>group</i>—(Optional) Display the cache entries for a particular group.</p> <p>inet inet6—(Optional) Display multicast forwarding table entries for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display entries in the multicast forwarding table for a specific multicast instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>regular-expression—(Optional) Display information about the multicast forwarding table entries that match a UNIX-style regular expression.</p> <p>source-prefix <i>source-prefix</i>—(Optional) Display the cache entries for a particular source prefix.</p>

Required Privilege Level view

List of Sample Output [show multicast route on page 162](#)
[show multicast route brief on page 162](#)
[show multicast route detail on page 162](#)
[show multicast route extensive on page 163](#)

Output Fields Table 45 on page 161 describes the output fields for the **show multicast route** command. Output fields are listed in the approximate order in which they appear.

Table 45: show multicast route Output Fields

Field Name	Field Description	Level of Output
Address family	IPv4 address family (INET) or IPv6 address family (INET6).	All levels
Group	Group address.	All levels
Source	Prefix and length of the source as it is in the multicast forwarding table.	All levels
Upstream interface	Name of the interface on which the packet with this source prefix is expected to arrive.	All levels
Downstream interface list	List of interface names to which the packet with this source prefix is forwarded.	All levels
Session description	Name of the multicast session.	detail extensive
Statistics	Rate at which packets are being forwarded for this source and group entry (in Kbps and pps), and number of packets that have been forwarded to this prefix. If one or more of the kilobits per second packet forwarding statistic queries fails or times out, the statistics field displays Forwarding statistics are not available .	detail extensive
Next-hop ID	Next-hop identifier of the prefix. The identifier is returned by the routing device's Packet Forwarding Engine and is also displayed in the output of the show multicast nexthops command.	detail extensive
Upstream protocol	Protocol running on the interface on which the packet with this source prefix is expected to arrive.	detail extensive
Route state	Whether the group is Active or Inactive .	extensive
Forwarding state	Whether the prefix is pruned or forwarding.	extensive
Cache lifetime/timeout	Number of seconds until the prefix is removed from the multicast forwarding table. A value of never indicates a permanent forwarding entry.	extensive
Wrong incoming interface notifications	Number of times that the upstream interface was not available.	extensive

show multicast route user@host> show multicast route
Family: INET

Group: 228.0.0.0
Source: 10.255.14.144/32
Upstream interface: local
Downstream interface list:
so-1/0/0.0

Group: 239.1.1.1
Source: 10.255.14.144/32
Upstream interface: local
Downstream interface list:
so-1/0/0.0

Group: 239.1.1.1
Source: 10.255.70.15/32
Upstream interface: so-1/0/0.0
Downstream interface list:
mt-1/1/0.49152

Family: INET6

show multicast route brief The output for the **show multicast route brief** command is identical to that for the **show multicast route** command. For sample output, see **show multicast route** on page 162.

show multicast route detail user@host> show multicast route detail
Family: INET

Group: 228.0.0.0
Source: 10.255.14.144/32
Upstream interface: local
Downstream interface list:
so-1/0/0.0
Session description: Unknown
Statistics: 8 kbps, 100 pps, 45272 packets
Next-hop ID: 262142
Upstream protocol: PIM

Group: 239.1.1.1
Source: 10.255.14.144/32
Upstream interface: local
Downstream interface list:
so-1/0/0.0
Session description: Administratively Scoped
Statistics: 0 kbps, 0 pps, 13404 packets
Next-hop ID: 262142
Upstream protocol: PIM

Group: 239.1.1.1
Source: 10.255.70.15/32
Upstream interface: so-1/0/0.0
Downstream interface list:
mt-1/1/0.49152
Session description: Administratively Scoped
Statistics: 0 kbps, 0 pps, 38 packets
Next-hop ID: 262143
Upstream protocol: PIM

Family: INET6


```

show multicast route extensive user@host> show multicast route extensive
                               Family: INET

Group: 228.0.0.0
  Source: 10.255.14.144/32
  Upstream interface: local
  Downstream interface list:
    so-1/0/0.0
  Session description: Unknown
  Statistics: 8 kbps, 100 pps, 46454 packets
  Next-hop ID: 262142
  Upstream protocol: PIM
  Route state: Active
  Forwarding state: Forwarding
  Cache lifetime/timeout: 360 seconds
  Wrong incoming interface notifications: 0

Group: 239.1.1.1
  Source: 10.255.14.144/32
  Upstream interface: local
  Downstream interface list:
    so-1/0/0.0
  Session description: Administratively Scoped
  Statistics: 0 kbps, 0 pps, 13404 packets
  Next-hop ID: 262142
  Upstream protocol: PIM
  Route state: Active
  Forwarding state: Forwarding
  Cache lifetime/timeout: 348 seconds
  Wrong incoming interface notifications: 0

Group: 239.1.1.1
  Source: 10.255.70.15/32
  Upstream interface: so-1/0/0.0
  Downstream interface list:
    mt-1/1/0.49152
  Session description: Administratively Scoped
  Statistics: 0 kbps, 0 pps, 40 packets
  Next-hop ID: 262143
  Upstream protocol: PIM
  Route state: Active
  Forwarding state: Forwarding
  Cache lifetime/timeout: 360 seconds
  Wrong incoming interface notifications: 1

Family: INET6

```

show multicast rpf

Syntax	show multicast rpf <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <prefix> <summary>
Syntax (EX Series Switch)	show multicast rpf <inet inet6> <instance <i>instance-name</i> > <prefix> <summary>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display information about multicast reverse-path-forwarding (RPF) calculations.
Options	none—Display RPF calculation information for all supported address families. inet inet6—(Optional) Display the RPF calculation information for IPv4 or IPv6 family addresses, respectively. instance <i>instance-name</i> —(Optional) Display information about multicast RPF calculations for a specific multicast instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. prefix—(Optional) Display the RPF calculation information for the specified prefix. summary—(Optional) Display summary of all multicast RPF information.
Required Privilege Level	view
List of Sample Output	show multicast rpf on page 165 show multicast rpf inet6 on page 166 show multicast rpf prefix on page 167 show multicast rpf summary on page 167

Output Fields Table 46 on page 165 describes the output fields for the **show multicast rpf** command. Output fields are listed in the approximate order in which they appear.

Table 46: show multicast rpf Output Fields

Field Name	Field Description
Instance	Name of the routing instance. (Displayed when multicast is configured within a routing instance.)
Source prefix	Prefix and length of the source as it exists in the multicast forwarding table.
Protocol	How the route was learned.
Interface	Upstream RPF interface.
Neighbor	Upstream RPF neighbor.

```

show multicast rpf user@host> show multicast rpf

Multicast RPF table: inet.0, 12 entries

0.0.0.0/0
  Protocol: Static

10.255.14.132/32
  Protocol: Direct
  Interface: lo0.0

10.255.245.91/32
  Protocol: IS-IS
  Interface: so-1/1/1.0
  Neighbor: 192.168.195.21

127.0.0.1/32
Inactive172.16.0.0/12
Protocol: Static
Interface: fxp0.0
Neighbor: 192.168.14.254

192.168.0.0/16
Protocol: Static
Interface: fxp0.0
Neighbor: 192.168.14.254

192.168.14.0/24
Protocol: Direct
Interface: fxp0.0

192.168.14.132/32
Protocol: Local

192.168.195.20/30
Protocol: Direct
Interface: so-1/1/1.0

```

```
192.168.195.22/32
Protocol: Local

192.168.195.36/30
Protocol: IS-IS
Interface: so-1/1/1.0
Neighbor: 192.168.195.21
```

```
show multicast rpf inet6  user@host> show multicast rpf inet6
inet6 Multicast RPF table: inet6.0, 12 entries
```

```
::10.255.14.132/128
  Protocol: Direct
  Interface: lo0.0

::10.255.245.91/128
  Protocol: IS-IS
  Interface: so-1/1/1.0
  Neighbor: fe80::2a0:a5ff:fe28:2e8c

::192.168.195.20/126
  Protocol: Direct
  Interface: so-1/1/1.0

::192.168.195.22/128
  Protocol: Local

::192.168.195.36/126
  Protocol: IS-IS
  Interface: so-1/1/1.0
  Neighbor: fe80::2a0:a5ff:fe28:2e8c

::192.168.195.76/126
  Protocol: Direct
  Interface: fe-2/2/0.0

::192.168.195.77/128
  Protocol: Local

fe80::/64
  Protocol: Direct
  Interface: so-1/1/1.0

fe80::290:69ff:fe0c:993a/128
  Protocol: Local

fe80::2a0:a5ff:fe12:84f/128
  Protocol: Direct
  Interface: lo0.0

ff02::2/128
  Protocol: PIM

ff02::d/128
  Protocol: PIM
```

```
show multicast rpf prefix user@host> show multicast rpf ff02::/16
Multicast RPF table: inet6.0, 13 entries

ff02::2/128
    Protocol: PIM

ff02::d/128
    Protocol: PIM

...
```

```
show multicast rpf summary user@host> show multicast rpf summary
Multicast RPF table: inet.0, 16 entries
Multicast RPF table: inet6.0, 12 entries
```

show multicast scope

Syntax	show multicast scope <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show multicast scope <inet inet6> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display administratively scoped IP multicast information.
Options	<p>none—Display standard information about administratively scoped multicast information for all supported address families in all routing instances.</p> <p>inet inet6—(Optional) Display scoped multicast information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display administratively scoped information for a specific multicast instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show multicast scope on page 169</p> <p>show multicast scope inet on page 169</p> <p>show multicast scope inet6 on page 169</p>
Output Fields	Table 47 on page 168 describes the output fields for the show multicast scope command. Output fields are listed in the approximate order in which they appear.

Table 47: show multicast scope Output Fields

Field Name	Field Description
Scope name	Name of the multicast scope.
Group Prefix	Range of multicast groups that are scoped.
Interface	Interface that is the boundary of the administrative scope.
Resolve Rejects	Number of kernel resolve rejects.

```

show multicast scope user@host> show multicast scope

```

Scope name	Group Prefix	Interface	Resolve Rejects
232-net	232.232.0.0/16	fe-0/0/0.1	0
local	239.255.0.0/16	fe-0/0/0.1	0
local	ff05::/16	fe-0/0/0.1	0
larry	ff05::1234/128	fe-0/0/0.1	0


```

show multicast scope user@host> show multicast scope inet
inet

```

Scope name	Group Prefix	Interface	Resolve Rejects
232-net	232.232.0.0/16	fe-0/0/0.1	0
local	239.255.0.0/16	fe-0/0/0.1	0


```

show multicast scope user@host> show multicast scope inet6
inet6

```

Scope name	Group Prefix	Interface	Resolve Rejects
local	ff05::/16	fe-0/0/0.1	0
larry	ff05::1234/128	fe-0/0/0.1	0

show multicast sessions

Syntax	show multicast sessions <brief detail extensive> <logical-system (all <i>logical-system-name</i>)> < <i>regular-expression</i> >
Syntax (EX Series Switch)	show multicast sessions <brief detail extensive> < <i>regular-expression</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about announced IP multicast sessions.
Options	<p>none—Display standard information about all multicast sessions for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>regular-expression</i>—(Optional) Display information about announced sessions that match a UNIX-style regular expression.</p>
Required Privilege Level	view
List of Sample Output	<p>show multicast sessions on page 171</p> <p>show multicast sessions <i>regular-expression</i> detail on page 171</p>
Output Fields	Table 48 on page 170 describes the output fields for the show multicast sessions command. Output fields are listed in the approximate order in which they appear.

Table 48: show multicast sessions Output Fields

Field Name	Field Description
<i>session-name</i>	Name of the known announced multicast sessions.


```

show multicast sessions      user@host> show multicast sessions
                                1-Department of Biological Sciences, LSU
                                ...
                                Monterey Bay - DockCam
                                Monterey Bay - JettyCam
                                Monterey Bay - StandCam
                                Monterey DockCam
                                Monterey DockCam / ROV cam
                                ...
                                NASA TV (MPEG-1)
                                ...
                                UO Broadcast - NASA Videos - 25 Years of Progress
                                UO Broadcast - NASA Videos - Journey through the Solar System
                                UO Broadcast - NASA Videos - Life in the Universe
                                UO Broadcast - NASA Videos - Nasa and the Airplane
                                UO Broadcasts OPB's Oregon Story
                                UO DOD News Clips
                                UO Medical Management of Biological Casualties (1)
                                UO Medical Management of Biological Casualties (2)
                                UO Medical Management of Biological Casualties (3)
                                ...
                                376 active sessions.

show multicast sessions      user@host> show multicast sessions "NASA TV" detail
regular-expression detail    SDP Version: 0  Originated by: -@128.223.83.33
                                Session: NASA TV (MPEG-1)
                                Description: NASA television in MPEG-1 format, provided by Private University.
                                Please contact the UO if you have problems with this feed.
                                Email: Your Name Here <multicast@lists.private.edu>
                                Phone: Your Name Here <888/555-1212>
                                Bandwidth: AS:1000
                                Start time: permanent
                                Stop time: none
                                Attribute: type:broadcast
                                Attribute: tool:IP/TV Content Manager 3.4.14
                                Attribute: live:capture:1
                                Attribute: x-iptv-capture:mp1s
                                Media: video 54302 RTP/AVP 32 31 96 97
                                Connection Data: 224.2.231.45 ttl 127
                                Attribute: quality:8
                                Attribute: framerate:30
                                Attribute: rtpmap:96 WBIH/90000
                                Attribute: rtpmap:97 MP4V-ES/90000
                                Attribute: x-iptv-svr:video 128.223.91.191 live
                                Attribute: fmp:32 type=mpeg1
                                Media: audio 28848 RTP/AVP 14 0 96 3 5 97 98 99 100 101 102 10 11 103 104 105 106
                                Connection Data: 224.2.145.37 ttl 127
                                Attribute: rtpmap:96 X-WAVE/8000
                                Attribute: rtpmap:97 L8/8000/2
                                Attribute: rtpmap:98 L8/8000
                                Attribute: rtpmap:99 L8/22050/2
                                Attribute: rtpmap:100 L8/22050
                                Attribute: rtpmap:101 L8/11025/2
                                Attribute: rtpmap:102 L8/11025
                                Attribute: rtpmap:103 L16/22050/2
                                Attribute: rtpmap:104 L16/22050

                                1 matching sessions.

```

show multicast snooping route

Syntax	<pre>show multicast snooping route <brief detail extensive> <active all inactive> <bridge-domain <i>bridge-domain-name</i>> <group <i>group</i>> <instance <i>instance-name</i>> <mesh-group <i>mesh-group-name</i>> <regular-expression> <source-prefix <i>source-prefix</i>></pre>
Release Information	Command introduced in Junos OS Release 8.5.
Description	Display the entries in the IP multicast snooping forwarding table. You can display some of this information with the show route table inet.1 command.
Options	<p>none—Display standard information about all entries in the multicast snooping table for all virtual switches and all bridge domains.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>active all inactive—(Optional) Display all active entries, all entries, or all inactive entries, respectively, in the multicast snooping table.</p> <p>bridge-domain <i>bridge-domain</i>—(Optional) Display the entries for a particular bridge domain.</p> <p>group <i>group</i>—(Optional) Display the entries for a particular group.</p> <p>instance <i>instance-name</i>—(Optional) Display the entries for a multicast instance.</p> <p>mesh-group <i>mesh-group-name</i>—(Optional) Display the entries for a particular mesh group.</p> <p><i>regular-expression</i>—(Optional) Display information about the multicast forwarding table entries that match a UNIX-style regular expression.</p> <p>source-prefix <i>source-prefix</i>—(Optional) Display the entries for a particular source prefix.</p>
Required Privilege Level	view
List of Sample Output	<p>show multicast snooping route bridge-domain on page 173</p> <p>show multicast snooping route instance vs on page 173</p>
Output Fields	Table 49 on page 172 describes the output fields for the show multicast snooping route command. Output fields are listed in the approximate order in which they appear.

Table 49: show multicast snooping route Output Fields

Field Name	Field Description	Level of Output
Nexthop Bulking	Displays whether next-hop bulk updating is ON or OFF (only for routing-instance type of virtual switch or vpls).	All levels

Table 49: show multicast snooping route Output Fields (*continued*)

Field Name	Field Description	Level of Output
Family	IPv4 address family (INET) or IPv6 address family (INET6).	All levels
Group	Group address.	All levels
Source	Prefix and length of the source as it is in the multicast forwarding table.	All levels
Routing-instance	Name of the routing instance to which this routing information applies. (Displayed when multicast is configured within a routing instance.)	All levels
Learning Domain	Name of the learning domain to which this routing information applies.	detail extensive
Statistics	Rate at which packets are being forwarded for this source and group entry (in Kbps and pps), and number of packets that have been forwarded to this prefix.	detail extensive
Next-hop ID	Next-hop identifier of the prefix. The identifier is returned by the router's Packet Forwarding Engine and is also displayed in the output of the show multicast nexthops command.	detail extensive
Route state	Whether the group is Active or Inactive .	extensive
Forwarding state	Whether the prefix is Pruned or Forwarding .	extensive
Cache lifetime/timeout	Number of seconds until the prefix is removed from the multicast forwarding table. A value of never indicates a permanent forwarding entry.	extensive

```

show multicast      user@host> show multicast snooping route bridge-domain br-dom-1 extensive
snooping route      Family: INET
bridge-domain      Group: 232.1.1.1
                        Source: 192.168.3.100/32
                        Downstream interface list:
                        ge-0/1/0.200
                        Statistics: 0 kbps, 0 pps, 1 packets
                        Next-hop ID: 1048577
                        Route state: Active
                        Forwarding state: Forwarding
                        Cache lifetime/timeout: 240 seconds

```

```

show multicast      user@host> show multicast snooping route instance vs
snooping route      Nexthop Bulking: ON
instance vs         Family: INET

                        Group: 224.0.0.0
                        Bridge-domain: vsid500

                        Group: 225.1.0.1
                        Bridge-domain: vsid500
                        Downstream interface list: vsid500
                        ge-0/3/8.500 ge-1/1/9.500 ge1/2/5.500

```


show multicast snooping statistics

Syntax	show multicast snooping statistics <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced in Junos OS Release 8.5.
Description	Display IP multicast snooping statistics.
Options	<p>none—Display multicast snooping statistics for all supported address families for all routing instances.</p> <p>instance <i>instance-name</i>—(Optional) Display statistics for a specific routing instance.</p> <p>interface <i>interface-name</i>—(Optional) Display statistics for a specific interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The input and output interface multicast snooping statistics are consistent, but not timely. They are constructed from the forwarding statistics, which are gathered at 30-second intervals. Therefore, the output from this command always lags the true count by up to 30 seconds.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear multicast snooping statistics on page 91
List of Sample Output	show multicast snooping statistics on page 177
Output Fields	Table 50 on page 175 describes the output fields for the show multicast snooping statistics command. Output fields are listed in the approximate order in which they appear.

Table 50: show multicast snooping statistics Output Fields

Field Name	Field Description
Routing-instance	Name of the routing instance. (Displayed when multicast is configured within a routing instance.)
Family	Protocol family for which multicast statistics are displayed: INET or INET6 .
Interface	Name of the interface for which statistics are being reported.
Routing Protocol	Primary multicast protocol on the interface: PIM , DVMRP for INET , or PIM for INET6 .
Mismatch	Number of multicast packets that did not arrive on the correct upstream interface.

Table 50: show multicast snooping statistics Output Fields (*continued*)

Field Name	Field Description
Kernel Resolve	Number of resolve requests processed by the primary multicast protocol on the interface.
Resolve No Route	Number of resolve requests that were ignored because there was no route to the source.
In Kbytes	Total accumulated incoming packets (in KB) since the last time the clear multicast snooping statistics command was issued.
Out Kbytes	Total accumulated outgoing packets (in KB) since the last time the clear multicast snooping statistics command was issued.
Mismatch error	Number of mismatches that were ignored because of internal errors.
Mismatch No Route	Number of mismatches that were ignored because there was no route to the source.
Routing Notify	Number of times that the multicast routing system has been notified of a new multicast source by a multicast routing protocol.
Resolve Error	Number of resolve requests that were ignored because of internal errors.
In packets	Total number of incoming packets since the last time the clear multicast snooping statistics command was issued.
Out packets	Total number of outgoing packets since the last time the clear multicast snooping statistics command was issued.

```

show multicast      user@host> show multicast snooping statistics
snooping statistics
Routing-instance: foo
Family: INET
Interface: fe-0/0/2.200
  Routing protocol:      PIM  Mismatch error:      0
  Mismatch:              0   Mismatch no route:    0
  Kernel resolve:        22   Routing notify:       0
  Resolve no route:      0   Resolve error:        0
  Resolve filtered:      0   Notify filtered:      0
  In kbytes:             0   In packets:           0
  Out kbytes:            0   Out packets:          0

Routing-instance: bar
Family: INET
Interface: fe-0/1/2.200
  Routing protocol:      PIM  Mismatch error:      0
  Mismatch:              0   Mismatch no route:    0
  Kernel resolve:        22   Routing notify:       0
  Resolve no route:      0   Resolve error:        0
  Resolve filtered:      0   Notify filtered:      0
  In kbytes:             0   In packets:           0
  Out kbytes:            0   Out packets:          0

```

show multicast statistics

Syntax	show multicast statistics <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display IP multicast statistics.
Options	<p>none—Display multicast statistics for all supported address families for all routing instances.</p> <p>inet inet6—(Optional) Display multicast statistics for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display statistics for a specific routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	The input and output interface multicast statistics are consistent, but not timely. They are constructed from the forwarding statistics, which are gathered at 30-second intervals. Therefore, the output from this command always lags the true count by up to 30 seconds.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear multicast statistics on page 92
List of Sample Output	show multicast statistics on page 180
Output Fields	Table 51 on page 178 describes the output fields for the show multicast statistics command. Output fields are listed in the approximate order in which they appear.

Table 51: show multicast statistics Output Fields

Field Name	Field Description
Family	Protocol family for which multicast statistics are displayed: INET or INET6 .
Interface	Name of the interface for which statistics are being reported.
Routing Protocol	Primary multicast protocol on the interface: PIM , DVMRP for INET , or PIM for INET6 .
Mismatch	Number of multicast packets that did not arrive on the correct upstream interface.
Kernel Resolve	Number of resolve requests processed by the primary multicast protocol on the interface.

Table 51: show multicast statistics Output Fields (*continued*)

Field Name	Field Description
Resolve No Route	Number of resolve requests that were ignored because there was no route to the source.
In Kbytes	Total accumulated incoming packets (in KB) since the last time the clear multicast statistics command was issued.
Out Kbytes	Total accumulated outgoing packets (in KB) since the last time the clear multicast statistics command was issued.
Mismatch error	Number of mismatches that were ignored because of internal errors.
Mismatch No Route	Number of mismatches that were ignored because there was no route to the source.
Routing Notify	Number of times that the multicast routing system has been notified of a new multicast source by a multicast routing protocol .
Resolve Error	Number of resolve requests that were ignored because of internal errors.
In Packets	Total number of incoming packets since the last time the clear multicast statistics command was issued.
Out Packets	Total number of outgoing packets since the last time the clear multicast statistics command was issued.
Resolve requests on interfaces not enabled for multicast <i>n</i>	Number of resolve requests on interfaces that are not enabled for multicast that have accumulated since the clear multicast statistics command was last issued.
Resolve requests with no route to source <i>n</i>	Number of resolve requests with no route to the source that have accumulated since the clear multicast statistics command was last issued.
Routing notifications on interfaces not enabled for multicast <i>n</i>	Number of routing notifications on interfaces not enabled for multicast that have accumulated since the clear multicast statistics command was last issued.
Routing notifications with no route to source <i>n</i>	Number of routing notifications with no route to the source that have accumulated since the clear multicast statistics command was last issued.
Interface Mismatches on interfaces not enabled for multicast <i>n</i>	Number of interface mismatches on interfaces not enabled for multicast that have accumulated since the clear multicast statistics command was last issued.
Group Membership on interfaces not enabled for multicast <i>n</i>	Number of group memberships on interfaces not enabled for multicast that have accumulated since the clear multicast statistics command was last issued.

```

show multicast      user@host> show multicast statistics
statistics
  Address family: INET
  Interface: fe-0/0/0
    Routing Protocol:      PIM    Mismatch error:      0
    Mismatch:              0      Mismatch No Route:    0
    Kernel Resolve:        10      Routing Notify:       0
    Resolve No Route:      0      Resolve Error:        0
    In Kbytes:             4641    In Packets:           50454
    Out Kbytes:            0      Out Packets:          0
  Interface: so-0/1/1.0
    Routing Protocol:      PIM    Mismatch error:      0
    Mismatch:              0      Mismatch No Route:    0
    Kernel Resolve:        0      Routing Notify:       0
    Resolve No Route:      0      Resolve Error:        0
    In Kbytes:             0      In Packets:           0
    Out Kbytes:            4641    Out Packets:          50454

  Resolve requests on interfaces not enabled for multicast 0
  Resolve requests with no route to source 0
  Routing notifications on interfaces not enabled for multicast 0
  Routing notifications with no route to source 0
  Interface Mismatches on interfaces not enabled for multicast 0
  Group Membership on interfaces not enabled for multicast 25

  Address family: INET6
  Interface: fe-0/0/0.0
    Routing Protocol:      PIM    Mismatch error:      0
    Mismatch:              0      Mismatch No Route:    0
    Kernel Resolve:        0      Routing Notify:       0
    Resolve No Route:      0      Resolve Error:        0
    In Kbytes:             0      In Packets:           0
    Out Kbytes:            0      Out Packets:          0
  Interface: so-0/1/1.0
    Routing Protocol:      PIM    Mismatch error:      0
    Mismatch:              0      Mismatch No Route:    0
    Kernel Resolve:        0      Routing Notify:       0
    Resolve No Route:      0      Resolve Error:        0
    In Kbytes:             0      In Packets:           0
    Out Kbytes:            0      Out Packets:          0

  Resolve requests on interfaces not enabled for multicast 0
  Resolve requests with no route to source 0
  Routing notifications on interfaces not enabled for multicast 0
  Routing notifications with no route to source 0
  Interface Mismatches on interfaces not enabled for multicast 0
  Group Membership on interfaces not enabled for multicast 0

```

show multicast usage

Syntax	show multicast usage <brief detail> <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show multicast usage <brief detail> <inet inet6> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display usage information about the 10 most active Distance Vector Multicast Routing Protocol (DVMRP) or Protocol Independent Multicast (PIM) groups.
Options	<p>none—Display multicast usage information for all supported address families for all routing instances.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>inet inet6—(Optional) Display usage information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about the most active DVMRP or PIM groups for a specific multicast instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show multicast usage on page 182</p> <p>show multicast usage brief on page 182</p> <p>show multicast usage instance on page 182</p> <p>show multicast usage detail on page 182</p>
Output Fields	Table 52 on page 181 describes the output fields for the show multicast usage command. Output fields are listed in the approximate order in which they appear.

Table 52: show multicast usage Output Fields

Field Name	Field Description
Instance	Name of the routing instance. (Displayed when multicast is configured within a routing instance.)

Table 52: show multicast usage Output Fields (*continued*)

Field Name	Field Description
Group	Group address.
Sources	Number of sources.
Packets	Number of packets that have been forwarded to this prefix. If one or more of the packets forwarded statistic queries fails or times out, the packets field displays unavailable .
Bytes	Number of bytes that have been forwarded to this prefix. If one or more of the packets forwarded statistic queries fails or times out, the bytes field displays unavailable .
Prefix	IP address.
/len	Prefix length.
Groups	Number of multicast groups.

show multicast usage

```

user@host> show multicast usage
Group          Sources Packets          Bytes
228.0.0.0      1        52847          4439148
239.1.1.1      2        13450          1125530

Prefix         /len Groups Packets          Bytes
10.255.14.144  /32  2        66254          5561304
10.255.70.15   /32  1         43           3374...
```

show multicast usage brief

The output for the **show multicast usage brief** command is identical to that for the **show multicast usage** command. For sample output, see **show multicast usage** on page 182.

show multicast usage instance

```

user@host> show multicast usage instance VPN-A
Group          Sources Packets          Bytes
224.2.127.254  1        5538          509496
224.0.1.39     1         13           624
224.0.1.40     1         13           624

Prefix         /len Groups Packets          Bytes
192.168.195.34 /32  1        5538          509496
10.255.14.30   /32  1         13           624
10.255.245.91  /32  1         13           624
...
```

show multicast usage detail

```

user@host> show multicast usage detail
Group          Sources Packets          Bytes
228.0.0.0      1        53159          4465356
  Source: 10.255.14.144 /32 Packets: 53159 Bytes: 4465356
239.1.1.1      2        13450          1125530
  Source: 10.255.14.144 /32 Packets: 13407 Bytes: 1122156
  Source: 10.255.70.15   /32 Packets: 43 Bytes: 3374
```

Prefix	/len	Groups	Packets	Bytes
10.255.14.144	/32	2	66566	5587512
Group: 228.0.0.0			Packets: 53159	Bytes: 4465356
Group: 239.1.1.1			Packets: 13407	Bytes: 1122156
10.255.70.15	/32	1	43	3374
Group: 239.1.1.1			Packets: 43	Bytes: 3374

show pgm negative-acknowledgments

Syntax	show pgm negative-acknowledgments
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display the sent or received Pragmatic General Multicast (PGM) negative acknowledgments (NAKs), the source-path message (SPM) sequence number being negatively acknowledged, and the current state of repair.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show pgm negative-acknowledgments on page 185
Output Fields	Table 53 on page 184 describes the output fields for the show pgm negative-acknowledgments command. Output fields are listed in the approximate order in which they appear.

Table 53: show pgm negative-acknowledgments Output Fields

Field Name	Field Description
Global source id	Global source identifier (GSI), which combines with the source port to determine the transport session identifier (TSI).
Network layer address	Network layer address of the local system.
Source port	Source port number, which is combined with the GSI to determine the TSI.
SPM sequence number	Numeric sequence identifier of the source-path message.
Window (trailing/leading sequence)	Range of sequence numbers used by the source for sequentially numbering and transmitting the most recent packets. The trailing (or left) edge of the transmit window is the sequence number of the oldest data packet available for repair from a source. The leading (or right) edge of the transmit window is defined as the sequence number of the most recent data packet a source has transmitted.
Outstanding NAKS	<p>Total number of outstanding negative acknowledgments sent or received by the local system. NAK packets indicate that a packet in the expected original data sequence has been detected as missing.</p> <ul style="list-style-type: none"> • Sequence number—Numeric sequence identifier of the source-path message. • Group—Group address. • Source—Multicast source. • Interface—Interface name. • Receiver—IP address receiving the multicast.

```
show pgm negative-acknowledgments  user@host> show pgm negative-acknowledgments
                                     Global source ID: 010203040506 Source port: 1111
                                     Network layer address: 10.38.0.1
                                     SPM sequence number: 1
                                     Window (trailing/leading sequence): 0/1
                                     Outstanding NAKs:
                                         Sequence number: 1
                                         Group: 225.1.1.1
                                         Source: 192.168.195.121
                                         Interface: t3-0/2/0:0 Receiver: 10.38.0.10
```

show pgm source-path-messages

Syntax	show pgm source-path-messages
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display the Pragmatic General Multicast (PGM) source-path messages received.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show pgm source-path-messages on page 186
Output Fields	Table 54 on page 186 describes the output fields for the show pgm source-path-messages command. Output fields are listed in the approximate order in which they appear.

Table 54: show pgm source-path-messages Output Fields

Field Name	Field Description
Global source ID	Global source identifier (GSI), which combines with the source port to determine the transport session identifier (TSI).
Port	Source port number, which combines with the GSI to determine the TSI.
SPM number	Numeric sequence identifier of the source-path message.
Trail number	Sequence number of the oldest data packet available for repair from a source.
Lead number	Sequence number of the most recent data packet a source has transmitted.
Network layer address	Network layer address of the local system.

show pgm source-path-messages	user@host> show pgm source-path-messages
	Global source ID Port SPM number Trail number Lead number Network layer address
	010203040506 1111 1 0 1 10.38.0.1

show pgm statistics

Syntax	show pgm statistics
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display Pragmatic General Multicast (PGM) packet statistics, including general loss and repair statistics.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show pgm statistics on page 189
Output Fields	Table 55 on page 187 describes the output fields for the show pgm statistics command. Output fields are listed in the approximate order in which they appear.

Table 55: show pgm statistics Output Fields

Field Name	Field Description
PGM type, # received, # sent	<p>Number of packets received and sent for the following PGM packet types:</p> <ul style="list-style-type: none"> • SPM—Number of total source path messages received and sent by the local system. Source path messages (SPMs) are sent by a source to establish the source path state in network elements and to provide the transmit-window state to receivers. • POLL—Total number of poll requests received and sent by the local system. • POLR—Total number of poll responses received and sent by the local system. • ODATA—Total number of original data packets received and sent by the local system. • RDATA—Total number of repair data packets received and sent by the local system. RDATA packets are generated in response to negative acknowledgments (NAKs), which indicate a missing packet from the original data sequence. • NAK—Total number of negative acknowledgments received and sent by the local system. NAK packets indicate that a packet in the expected original data sequence has been detected as missing. • NULLNAK—Total number of null negative acknowledgments received and sent by the local system. NULLNAKs are transmitted by a designated local repairer that receives NAKs redirected to it by either receivers or network elements to provide flow-control feedback to a source. • NCF—Total number of NAK confirmations received and sent by the local system. NAK confirmations are generated in response to NAK packets that are received. • SPMR—Total number of source path message requests (SPMRs) received and sent by the local system. SPMRs are used to solicit a source path message from a source in a nonimplosive way. The typical application is for late-joining receivers to solicit source path messages directly from a source in order to be able to send NAKs for missing packets, without having to wait for a regularly scheduled source path message from that source. • OTHER—Total number of other PGM packets received and sent by the local system.
packets shorter than minimum PGM header length	Total number of packets received with headers that are shorter than the minimum required PGM header length.

Table 55: show pgm statistics Output Fields (*continued*)

Field Name	Field Description
packets received with incorrect check sum	Total number of packets received with an incorrect checksum. The checksum field is the 1's complement of the 1's complement sum of the entire PGM packet, including the header.
packets received with zero check sum	Total number of packets received with a zero checksum. If the computed checksum is zero, it is transmitted as all ones. A value of zero in this field means that the transmitter generated no checksum.
packets received with TSDU length incorrect	Total number of packets received with an incorrect Transport Service Data Unit (TSDU) length (16 bits).
packets received with SPM length incorrect	Total number of packets received with an incorrect source path message length.
packets received with unknown SPM address family	Total number of packets received with an unknown source path message address family indicator (AFI).
packets received with NAK length incorrect	Total number of packets received with an incorrect NAK length.
packets received with unknown NAK address family	Total number of packets received with an unknown NAK address family indicator (AFI).
packets received with NAK for unknown TSI	Total number of NAK packets received with an unknown transport session identifier (TSI).
packets received when NAK throttled	Total number of packets received when NAK is throttled.
packets received with NCF length incorrect	Total number of packets received with an incorrect NAK confirmation length.
packets received with unknown NCF address family	Total number of packets received with an unknown NAK confirmation address family indicator (AFI).
packets received with NCF for unknown TSI	Total number of NAK confirmation packets received with an unknown transport session identifier (TSI).
packets received with RDATA length incorrect	Total number of packets received with an incorrect RDATA length.
packets received with RDATA for unknown TSI	Total number of RDATA packets received with an unknown transport session identifier (TSI).

show pgm statistics

user@host> show pgm statistics

PGM type	# received	# sent
SPM	0	0
POLL	0	0
POLR	0	0
ODATA	0	0
RDATA	0	0
NAK	0	0
NULLNAK	0	0
NCF	0	0
SPMR	0	0
OTHER	0	0

packets shorter than minimum PGM header length :	0
packets received with incorrect check sum :	0
packets received with zero check sum :	0
packets received with TSU length incorrect :	0
packets received with SPM length incorrect :	0
packets received with unknown SPM address family:	0
packets received with NAK length incorrect :	0
packets received with unknown NAK address family:	0
packets received with NAK for unknown TSI :	0
packets received when NAK throttled :	0
packets received with NCF length incorrect :	0
packets received with unknown NCF address family:	0
packets received with NCF for unknown TSI :	0
packets received with RDATA length incorrect :	0
packets received with RDATA for unknown TSI :	0

show pim bootstrap

Syntax	show pim bootstrap <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show pim bootstrap <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. instance option introduced in Junos OS Release 10.0 for EX Series switches.
Description	For sparse mode only, display information about Protocol Independent Multicast (PIM) bootstrap routers.
Options	<p>none—Display PIM bootstrap router information for all routing instances.</p> <p>instance <i>instance-name</i>—(Optional) Display information about bootstrap routers for a specific PIM-enabled routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show pim bootstrap on page 191</p> <p>show pim bootstrap instance on page 191</p>
Output Fields	Table 56 on page 190 describes the output fields for the show pim bootstrap command. Output fields are listed in the approximate order in which they appear.

Table 56: show pim bootstrap Output Fields

Field Name	Field Description
Instance	Name of the routing instance.
BSR	Bootstrap router.
Pri	Priority of the routing device to be elected to be the bootstrap router.
Local address	Local routing device's address.
Pri	Local routing device's address priority to be elected as the bootstrap router.
State	Local routing device's election state: Candidate , Elected , or Ineligible .
Timeout	How long until the local routing device declares the bootstrap router to be unreachable, in seconds.

show pim bootstrap user@host> show pim bootstrap
Instance: PIM.master

BSR	Pri	Local address	Pri	State	Timeout
None	0	10.255.71.46	0	InEligible	0
feco:1:1:1:1:0:aff:785c 34	feco:1:1:1:1:0:aff:7c12		0	InEligible	0

show pim bootstrap instance user@host> show pim bootstrap instance VPN-A
Instance: PIM.VPN-A

BSR	Pri	Local address	Pri	State	Timeout
None	0	192.168.196.105	0	InEligible	0

show pim interfaces

Syntax	show pim interfaces <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show pim interfaces <inet inet6> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display information about the interfaces on which Protocol Independent Multicast (PIM) is configured.
Options	<p>none—Display interface information for all family addresses for all routing instances.</p> <p>inet inet6—(Optional) Display interface information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about interfaces for a specific PIM-enabled routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show pim interfaces on page 193</p> <p>show pim interfaces inet on page 194</p> <p>show pim interfaces inet6 on page 194</p>
Output Fields	Table 57 on page 192 describes the output fields for the show pim interfaces command. Output fields are listed in the approximate order in which they appear.

Table 57: show pim interfaces Output Fields

Field Name	Field Description
Instance	Name of the routing instance.
Name	Interface name.
State	State of the interface. The state also is displayed in the show interfaces command.

Table 57: show pim interfaces Output Fields (*continued*)

Field Name	Field Description
Mode	<p>PIM mode running on the interface:</p> <ul style="list-style-type: none"> • Sparse—In sparse mode, routing devices must join and leave multicast groups explicitly. Upstream routing devices do not forward multicast traffic to this routing device unless this device has sent an explicit request (using a join message) to receive multicast traffic. • Dense—Unlike sparse mode, where data is forwarded only to routing devices sending an explicit request, dense mode implements a flood-and-prune mechanism, similar to DVMRP (the first multicast protocol used to support the multicast backbone). • Sparse-Dense—Sparse-dense mode allows the interface to operate on a per-group basis in either sparse or dense mode. A group specified as dense is not mapped to a rendezvous point (RP). Instead, data packets destined for that group are forwarded using PIM-Dense Mode (PIM-DM) rules. A group specified as sparse is mapped to an RP, and data packets are forwarded using PIM-Sparse Mode (PIM-SM) rules.
IP	Version number of the address family on the interface: 4 (IPv4) or 6 (IPv6).
V	PIM version running on the interface: 1 or 2.
State	<p>State of PIM on the interface:</p> <ul style="list-style-type: none"> • DR—Designated router. • NotDR—Not the designated router. • P2P—Point to point.
NbrCnt	Number of neighbors that have been seen on the interface.
JoinCnt(sg)	Number of (s,g) join messages that have been seen on the interface.
JointCnt(*g)	Number of (*g) join messages that have been seen on the interface.
DR address	Address of the designated router.

show pim interfaces user@host> show pim interfaces
Instance: PIM.master

Name address	Stat	Mode	IP V	State	NbrCnt	JoinCnt(sg)	JointCnt(*g)	DR
fe-0/0/0.0 10.10.10.2	Up	Sparse	4 2	DR	1	1	3	
fe-0/0/3.0 20.20.20.2	Up	Sparse	4 2	DR	1	1	3	
lo0.0 10.255.72.54	Up	Sparse	4 2	DR	0	0	0	
pe-1/2/0.32769	Up	Sparse	4 2	P2P	0	0	0	
t1-0/1/0.0 lo0.0	Up	Sparse	4 2	P2P	1	0	0	
fe80::2a0:a5ff:fe5e:209	Up	Sparse	6 2	DR	0	0	0	

show pim interfaces user@host> **show pim interfaces inet**
inet Instance: PIM.master

Name address	Stat	Mode	IP V State	NbrCnt	JoinCnt(sg)	JointCnt(*g)	DR
fe-0/0/0.0 10.10.10.2	Up	Sparse	4 2 DR	1	1	3	
fe-0/0/3.0 20.20.20.2	Up	Sparse	4 2 DR	1	1	3	
lo0.0 10.255.72.54	Up	Sparse	4 2 DR	0	0	0	
pe-1/2/0.32769	Up	Sparse	4 2 P2P	0	0	0	
tl-0/1/0.0	Up	Sparse	4 2 P2P	1	0	0	

show pim interfaces user@host> **show pim interfaces inet6**
inet6 Instance: PIM.master

Name address	Stat	Mode	IP V State	NbrCnt	JoinCnt(sg)	JointCnt(*g)	DR
lo0.0 fe80::2a0:a5ff:fe5e:209	Up	Sparse	6 2 DR	0	0	0	

show pim join

Syntax	<pre>show pim join <brief detail extensive summary> <inet inet6> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <range></pre>
Syntax (EX Series Switch)	<pre>show pim join <brief detail extensive summary> <inet inet6> <instance <i>instance-name</i>> <range></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>summary option introduced in Junos OS Release 9.6.</p> <p>inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.</p>
Description	Display information about Protocol Independent Multicast (PIM) groups.
Options	<p>none—Display the standard information about PIM groups for all supported family addresses for all routing instances.</p> <p>brief detail extensive summary—(Optional) Display the specified level of output.</p> <p>inet inet6—(Optional) Display PIM group information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about groups for the specified PIM-enabled routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>range—(Optional) Address range of the group, specified as <i>prefix/prefix-length</i>.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear pim join on page 96
List of Sample Output	<p>show pim join summary on page 197</p> <p>show pim join on page 197</p> <p>show pim join instance on page 198</p> <p>show pim join detail on page 198</p> <p>show pim join extensive on page 198</p> <p>show pim join instance extensive on page 199</p>

Output Fields Table 58 on page 196 describes the output fields for the **show pim join** command. Output fields are listed in the approximate order in which they appear.

Table 58: show pim join Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the routing instance.	brief detail extensive
Family	Name of the address family: inet (IPv4) or inet6 (IPv6).	brief detail extensive
Route type	Type of multicast route: (S,G) or (*,G).	summary
Route count	Number of (S,G) routes and number of (*,G) routes.	summary
R	Rendezvous Point Tree	brief detail extensive
S	Sparse	brief detail extensive
W	Wildcard	brief detail extensive
Group	Group address.	brief detail extensive
Source	Multicast source: <ul style="list-style-type: none"> • * (wildcard value) • <i>ipv4-address</i> • <i>ipv6-address</i> 	brief detail extensive
RP	Rendezvous point for the PIM group.	brief detail extensive
Flags	PIM flags: <ul style="list-style-type: none"> • dense—Dense mode entry. • rptree—Entry is on the rendezvous point tree. • sparse—Sparse mode entry. • spt—Entry is on the shortest-path tree for the source. • wildcard—Entry is on the shared tree. 	brief detail extensive
Upstream interface	RPF interface toward the source address for the source-specific state (S,G) or toward the rendezvous point (RP) address for the non-source-specific state (*,G).	brief detail extensive
Upstream neighbor	Information about the upstream neighbor: Direct , Local , Unknown , or a specific IP address.	extensive

Table 58: show pim join Output Fields (*continued*)

Field Name	Field Description	Level of Output
Upstream state	Information about the upstream interface: <ul style="list-style-type: none"> • Join to RP—Sending a join to the rendezvous point. • Join to Source—Sending a join to the source. • Local RP—Sending neither joins nor prunes toward the RP, because this router is the rendezvous point. • Local Source—Sending neither joins nor prunes toward the source, because the source is locally attached to this routing device. • Prune to RP—Sending a prune to the rendezvous point. • Prune to Source—Sending a prune to the source. 	extensive
Downstream neighbors	Information about downstream interfaces: <ul style="list-style-type: none"> • Interface—Interface name for the downstream neighbor. <p>NOTE: A pseudo PIM-SM interface appears for all IGMP-only interfaces.</p> <ul style="list-style-type: none"> • Interface address—Address of the downstream neighbor. • State—Information about the downstream neighbor: join or prune. • Flags—PIM join flags: R (RPtree), S (Sparse), W (Wildcard), or zero. 	extensive
Assert Timeout	Length of time between assert cycles on downstream interface. Not displayed if assert timer is null.	extensive
Timeout	Time remaining until the downstream join state is updated (in seconds). If the downstream join state is not updated before this keepalive timer reaches zero, the entry is deleted. If there is a directly connected host, Timeout is Infinity .	extensive

```

show pim join summary user@host> show pim join summary
Instance: PIM.master Family: INET

Route type      Route count
(s,g)           2
(*,g)           1

Instance: PIM.master Family: INET6

```

```

show pim join user@host> show pim join
Instance: PIM.master Family: INET
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

Group: 239.1.1.1
Source: *
RP: 10.255.14.144
Flags: sparse,rptree,wildcard
Upstream interface: Local

Group: 239.1.1.1
Source: 10.255.14.144
Flags: sparse,spt
Upstream interface: Local

```

```
Group: 239.1.1.1
  Source: 10.255.70.15
  Flags: sparse,spt
  Upstream interface: so-1/0/0.0

Instance: PIM.master Family: INET6
R = Rendezvous Point Tree, S = Sparse, W = Wildcard
```

show pim join instance user@host> **show pim join instance VPN-A**
Instance: PIM.VPN-A Family: INET
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

```
Group: 235.1.1.2
  Source: *
  RP: 10.10.47.100
  Flags: sparse,rptree,wildcard
  Upstream interface: Local
```

```
Group: 235.1.1.2
  Source: 192.168.195.74
  Flags: sparse,spt
  Upstream interface: at-0/3/1.0
```

```
Group: 235.1.1.2
  Source: 192.168.195.169
  Flags: sparse
  Upstream interface: so-1/0/1.0
```

```
Instance: PIM.VPN-A Family: INET6
R = Rendezvous Point Tree, S = Sparse, W = Wildcard
```

show pim join detail user@host> **show pim join detail**
Instance: PIM.master Family: INET
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

```
Group: 239.1.1.1
  Source: *
  RP: 10.255.14.144
  Flags: sparse,rptree,wildcard
  Upstream interface: Local
```

```
Group: 239.1.1.1
  Source: 10.255.14.144
  Flags: sparse,spt
  Upstream interface: Local
```

```
Group: 239.1.1.1
  Source: 10.255.70.15
  Flags: sparse,spt
  Upstream interface: so-1/0/0.0
```

```
Instance: PIM.master Family: INET6
R = Rendezvous Point Tree, S = Sparse, W = Wildcard
```

show pim join extensive user@host> **show pim join extensive**
Instance: PIM.master Family: INET
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

```
Group: 239.1.1.1
  Source: *
```

```

RP: 10.255.14.144
Flags: sparse,rptree,wildcard
Upstream interface: Local
Upstream neighbor: Local
Upstream state: Local RP
Downstream neighbors:
  Interface: so-1/0/0.0
    10.111.10.2 State: Join Flags: SRW Timeout: 174
  Interface: mt-1/1/0.32768
    10.10.47.100 State: Join Flags: SRW Timeout: Infinity

```

```

Group: 239.1.1.1
Source: 10.255.14.144
Flags: sparse,spt
Upstream interface: Local
Upstream neighbor: Local
Upstream state: Local Source, Local RP
Keepalive timeout: 344
Downstream neighbors:
  Interface: so-1/0/0.0
    10.111.10.2 State: Join Flags: S Timeout: 174
  Interface: mt-1/1/0.32768
    10.10.47.100 State: Join Flags: S Timeout: Infinity

```

```

Group: 239.1.1.1
Source: 10.255.70.15
Flags: sparse,spt
Upstream interface: so-1/0/0.0
Upstream neighbor: 10.111.10.2
Upstream state: Local RP, Join to Source
Keepalive timeout: 344
Downstream neighbors:
  Interface: Pseudo-GMP
    fe-0/0/0.0 fe-0/0/1.0 fe-0/0/3.0
  Interface: so-1/0/0.0 (pruned)
    10.111.10.2 State: Prune Flags: SR Timeout: 174
  Interface: mt-1/1/0.32768
    10.10.47.100 State: Join Flags: S Timeout: Infinity

```

```

Instance: PIM.master Family: INET6
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

```

```

show pim join instance extensive user@host> show pim join instance VPN-A extensive
Instance: PIM.VPN-A Family: INET
R = Rendezvous Point Tree, S = Sparse, W = Wildcard

```

```

Group: 235.1.1.2
Source: *
RP: 10.10.47.100
Flags: sparse,rptree,wildcard
Upstream interface: Local
Upstream neighbor: Local
Upstream state: Local RP
Downstream neighbors:
  Interface: mt-1/1/0.32768
    10.10.47.101 State: Join Flags: SRW Timeout: 156

```

```

Group: 235.1.1.2
Source: 192.168.195.74
Flags: sparse,spt
Upstream interface: at-0/3/1.0

```

Upstream neighbor: 10.111.30.2
Upstream state: Local RP, Join to Source
Keepalive timeout: 156

Group: 235.1.1.2
Source: 192.168.195.169
Flags: sparse
Upstream interface: so-1/0/1.0
Upstream neighbor: 10.111.20.2
Upstream state: Local RP, Join to Source
Keepalive timeout: 156

show pim mdt

Syntax	show pim mdt instance <i>instance-name</i> <brief detail extensive> <incoming outgoing> <logical-system (all logical-system-name)> <range>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about Protocol Independent Multicast (PIM) default multicast distribution tree (MDT) and the data MDTs in a Layer 3 VPN environment for a routing instance.
Options	<p>instance <i>instance-name</i>—Display information about data-MDTs for a specific PIM-enabled routing instance.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>incoming outgoing—(Optional) Display incoming or outgoing multicast data tunnels, respectively.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>range</i>—(Optional) Display information about an IP address with optional prefix length representing a particular multicast group.</p>
Required Privilege Level	view
List of Sample Output	<p>show pim mdt instance on page 202</p> <p>show pim mdt instance detail on page 202</p> <p>show pim mdt instance extensive on page 203</p> <p>show pim mdt instance incoming on page 203</p> <p>show pim mdt instance outgoing on page 203</p> <p>show pim mdt instance (SSM Mode) on page 203</p>
Output Fields	Table 59 on page 201 describes the output fields for the show pim mdt command. Output fields are listed in the approximate order in which they appear.

Table 59: show pim mdt Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the routing instance.	All levels
Tunnel direction	Direction the tunnel faces, from the router's perspective: Outgoing or Incoming .	All levels
Tunnel mode	Mode the tunnel is operating in: PIM-SSM or PIM-ASM .	All levels

Table 59: show pim mdt Output Fields (*continued*)

Field Name	Field Description	Level of Output
Default group address	Default multicast group address using this tunnel.	All levels
Default source address	Default multicast source address using this tunnel.	All levels
Default tunnel interface	Default multicast tunnel interface.	All levels
Default tunnel source	Address used as the source address for outgoing PIM control messages.	All levels
C-Group	Customer-facing multicast group address using this tunnel. If you enable dynamic reuse of data MDT group addresses, more than one group address can use the same data MDT.	detail
C-Source	IP address of the multicast source in the customer's address space. If you enable dynamic reuse of data MDT group addresses, more than one source address can use the same data MDT.	detail
P-Group	Service provider-facing multicast group address using this tunnel.	detail
Data tunnel interface	Multicast data tunnel interface that set up the data-MDT tunnel.	detail
Last known forwarding rate	Last known rate, in kilobits per second, at which the tunnel was forwarding traffic.	detail
Configured threshold rate	Rate, in kilobits per second, above which a data-MDT tunnel is created and below which it is deleted.	detail
Tunnel uptime	Time that this data-MDT tunnel has existed. The format is <i>hours:minutes:seconds</i> .	detail

```

show pim mdt instance user@host> show pim mdt instance VPN-A
                        Instance: PIM.VPN-A
                        Tunnel direction: Outgoing
                        Default group address: 239.1.1.1
                        Default tunnel interface: mt-1/1/0.32768
                        Default tunnel source: 192.168.7.1

                        C-group address   C-source address   P-group address   Data tunnel interface
                        235.1.1.2         192.168.195.74     228.0.0.0         mt-1/1/0.32769

                        Instance: PIM.VPN-A
                        Tunnel direction: Incoming
                        Default group address: 239.1.1.1
                        Default tunnel interface: mt-1/1/0.49152

show pim mdt instance user@host> show pim mdt instance VPN-A detail
detail                Instance: PIM.VPN-A
                        Tunnel direction: Outgoing
                        Default group address: 239.1.1.1

```


Default tunnel interface: mt-1/1/0.32768
 Default tunnel source: 192.168.7.1

C-Group: 235.1.1.2
 C-Source: 192.168.195.74
 P-Group : 228.0.0.0
 Data tunnel interface : mt-1/1/0.32769
 Last known forwarding rate : 48 kbps (6 kbps)
 Configured threshold rate : 10 kbps
 Tunnel uptime : 00:00:34

Instance: PIM.VPN-A
 Tunnel direction: Incoming
 Default group address: 239.1.1.1
 Default tunnel interface: mt-1/1/0.49152

show pim mdt instance extensive user@host> show pim mdt instance VPN-A extensive
 Instance: PIM.VPN-A

Tunnel direction: Outgoing
 Default group address: 239.1.1.1
 Default tunnel interface: mt-1/1/0.32768
 Default tunnel source: 192.168.7.1

C-Group: 235.1.1.2
 C-Source: 192.168.195.74
 P-Group : 228.0.0.0
 Data tunnel interface : mt-1/1/0.32769
 Last known forwarding rate : 48 kbps (6 kbps)
 Configured threshold rate : 10 kbps
 Tunnel uptime : 00:00:41

Instance: PIM.VPN-A
 Tunnel direction: Incoming
 Default group address: 239.1.1.1
 Default tunnel interface: mt-1/1/0.49152

show pim mdt instance incoming user@host> show pim mdt instance VPN-A incoming
 Instance: PIM.VPN-A

Tunnel direction: Incoming
 Default group address: 239.1.1.1
 Default tunnel interface: mt-1/1/0.49152

show pim mdt instance outgoing user@host> show pim mdt instance VPN-A outgoing
 Instance: PIM.VPN-A

Tunnel direction: Outgoing
 Default group address: 239.1.1.1
 Default tunnel interface: mt-1/1/0.32768
 Default tunnel source: 192.168.7.1

C-group address	C-source address	P-group address	Data tunnel interface
235.1.1.2	192.168.195.74	228.0.0.0	mt-1/1/0.32769

show pim mdt instance (SSM Mode) user@host> show pim mdt instance vpn-a
 Instance: PIM.vpn-a

Tunnel direction: Outgoing
 Tunnel mode: PIM-SSM
 Default group address: 232.1.1.1
 Default source address: 10.255.14.216
 Default tunnel interface: mt-1/3/0.32769
 Default tunnel source: 192.168.7.1

Instance: PIM.vpn-a
Tunnel direction: Incoming
Tunnel mode: PIM-SSM
Default group address: 232.1.1.1
Default source address: 10.255.14.217
Default tunnel interface: mt-1/3/0.49153

Instance: PIM.vpn-a
Tunnel direction: Incoming
Tunnel mode: PIM-SSM
Default group address: 232.1.1.1
Default source address: 10.255.14.218
Default tunnel interface: mt-1/3/0.49153

show pim mvpn

Syntax	show pim mvpn <logical-system (all logical-system-name) >
Release Information	Command introduced in Junos OS Release 9.4.
Description	Display information about multicast virtual private network (MVPN) instances.
Options	logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show pim mvpn on page 205
Output Fields	Table 60 on page 205 describes the output fields for the show pim mvpn command. Output fields are listed in the approximate order in which they appear.

Table 60: show pim mvpn Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the routing instance.	All levels
VPN-Group	Multicast group address configured for the default multicast distribution tree.	All levels
Mode	Mode the tunnel is operating in: PIM-MVPN , NGEN-MVPN , NGEN-TRANSITION or None .	All levels
Tunnel	Type of tunnel: PIM-SSM , PIM-SM , NGEN PMSI , or None (VRF-only). If NGEN-PMSI is displayed, enter the show mvpn instance command for more information.	All levels

```

show pim mvpn  user@host> show pim mvpn
                  Instance      VPN-Group      Mode      Tunnel
                  PIM.ce1       232.1.1.1     PIM-MVPN   PIM-SSM

```

show pim neighbors

Syntax	show pim neighbors <brief detail> <inet inet6> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show pim neighbors <brief detail> <inet inet6> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display information about Protocol Independent Multicast (PIM) neighbors.
Options	<p>none—(Same as brief) Display standard information about PIM neighbors for all supported family addresses for all routing instances.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>inet inet6—(Optional) Display information about PIM neighbors for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about neighbors for the specified PIM-enabled routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show pim neighbors on page 208</p> <p>show pim neighbors brief on page 208</p> <p>show pim neighbors instance on page 208</p> <p>show pim neighbors detail on page 208</p> <p>show pim neighbors detail (with BFD) on page 208</p>
Output Fields	Table 61 on page 206 describes the output fields for the show pim neighbors command. Output fields are listed in the approximate order in which they appear.

Table 61: show pim neighbors Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the routing instance.	All levels
Interface	Interface through which the neighbor is reachable.	All levels

Table 61: show pim neighbors Output Fields (*continued*)

Field Name	Field Description	Level of Output
Neighbor addr	Address of the neighboring PIM routing device.	All levels
IP	IP version: 4 or 6.	All levels
V	PIM version running on the neighbor: 1 or 2.	All levels
Mode	PIM mode of the neighbor: Sparse , Dense , SparseDense , or Unknown . When the neighbor is running PIM version 2, this mode is always Unknown .	All levels
Option	Can be one or more of the following: <ul style="list-style-type: none"> • B—Bidirectional Capable. • H—Hello Option Holdtime. • G—Generation Identifier. • P—Hello Option DR Priority. • L—Hello Option LAN Prune Delay. 	brief none
Uptime	Time the neighbor has been operational since the PIM process was last initialized, in the format dd:hh:mm:ss ago for less than a week and nwnd:hh:mm:ss ago for more than a week.	All levels
Address	Address of the neighboring PIM router.	detail
BFD	Status and operational state of the Bidirectional Forwarding Detection (BFD) protocol on the interface: Enabled , Operational state is up , or Disabled .	detail
Hello Option Holdtime	Time for which the neighbor is available, in seconds. The range of values is 0 through 65,535.	detail
Hello Default Holdtime	Default holdtime and the time remaining if the holdtime option is not in the received hello message.	detail
Hello Option DR Priority	Designated router election priority. The range of values is 0 through 255.	detail
Hello Option Generation ID	9- or 10-digit number used to tag hello messages.	detail
Hello Option LAN Prune Delay	Time to wait before the neighbor receives prune messages, in the format delay nnn ms override nnnn ms .	detail
Join Suppression supported	Neighbor is capable of join suppression.	detail
Rx Join	Information about joins received from the neighbor. <ul style="list-style-type: none"> • Group—Group addresses in the join message. • Source—Address of the source in the join message. • Timeout—Time for which the join is valid. 	detail

- show pim neighbors** user@host> show pim neighbors
 Instance: PIM.master
 B = Bidirectional Capable, G = Generation Identifier,
 H = Hello Option Holdtime, L = Hello Option LAN Prune Delay,
 P = Hello Option DR Priority
- | Interface | IP V Mode | Option | Uptime Neighbor addr |
|------------|-----------|--------|----------------------|
| so-1/0/0.0 | 4 2 | HPLG | 00:07:10 10.111.10.2 |
- show pim neighbors brief** The output for the **show pim neighbors brief** command is identical to that for the **show pim neighbors** command. For sample output, see **show pim neighbors** on page 208.
- show pim neighbors instance** user@host> show pim neighbors instance VPN-A
 Instance: PIM.VPN-A
 B = Bidirectional Capable, G = Generation Identifier,
 H = Hello Option Holdtime, L = Hello Option LAN Prune Delay,
 P = Hello Option DR Priority
- | Interface | IP V Mode | Option | Uptime Neighbor addr |
|----------------|-----------|--------|-----------------------|
| at-0/3/1.0 | 4 2 | HPLG | 00:07:54 10.111.30.2 |
| mt-1/1/0.32768 | 4 2 | HPLG | 00:07:22 10.10.47.101 |
| so-1/0/1.0 | 4 2 | HPLG | 00:07:50 10.111.20.2 |
- show pim neighbors detail** user@host> show pim neighbors detail
 Instance: PIM.master
 Interface: fe-3/0/2.0
 Address: 192.168.195.37, IPv4, PIM v2, Mode: Sparse
 Hello Option Holdtime: 65535 seconds
 Hello Option DR Priority: 1
 Hello Option LAN Prune Delay: delay 500 ms override 2000 ms
 Join Suppression supported
 Rx Join: Group Source Timeout
 225.1.1.1 192.168.195.78 0
 225.1.1.1 0 0
 Interface: lo0.0
 Address: 10.255.245.91, IPv4, PIM v2, Mode: Sparse
 Hello Option Holdtime: 65535 seconds
 Hello Option DR Priority: 1
 Hello Option LAN Prune Delay: delay 500 ms override 2000 ms
 Join Suppression supported
 Interface: pd-6/0/0.32768
 Address: 0.0.0.0, IPv4, PIM v2, Mode: Sparse
 Hello Option Holdtime: 65535 seconds
 Hello Option DR Priority: 0
 Hello Option LAN Prune Delay: delay 500 ms override 2000 ms
 Join Suppression supported
- show pim neighbors detail (with BFD)** user@host> show pim neighbors detail
 Instance: PIM.master
 Interface: fe-1/0/0.0
 Address: 192.168.11.1, IPv4, PIM v2, Mode: Sparse
 Hello Option Holdtime: 65535 seconds
 Hello Option DR Priority: 1
 Hello Option Generation ID: 836607909
 Hello Option LAN Prune Delay: delay 500 ms override 2000 ms

 Address: 192.168.11.2, IPv4, PIM v2
 BFD: Enabled, Operational state is up
 Hello Default Holdtime: 105 seconds 104 remaining

```
Hello Option DR Priority: 1
Hello Option Generation ID: 1907549685
Hello Option LAN Prune Delay: delay 500 ms override 2000 ms
```

```
Interface: fe-1/0/1.0
Address: 192.168.12.1,      IPv4, PIM v2
BFD: Disabled
Hello Default Holdtime: 105 seconds 80 remaining
Hello Option DR Priority: 1
Hello Option Generation ID: 1971554705
Hello Option LAN Prune Delay: delay 500 ms override 2000 ms
```

show pim rps

Syntax	<code>show pim rps</code> <code><brief detail extensive></code> <code><group-address></code> <code><inet inet6></code> <code><instance <i>instance-name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>show pim rps</code> <code><brief detail extensive></code> <code><group-address></code> <code><inet inet6></code> <code><instance <i>instance-name</i>></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display information about Protocol Independent Multicast (PIM) rendezvous points (RPs).
Options	<p>none—Display standard information about PIM RPs for all groups and family addresses for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>group-address—(Optional) Display the RPs for a particular group. If you specify a group address, the output lists the routing device that is the RP for that group.</p> <p>inet inet6—(Optional) Display information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about RPs for a specific PIM-enabled routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<code>show pim rps</code> on page 212 <code>show pim rps brief</code> on page 212 <code>show pim rps instance</code> on page 212 <code>show pim rps extensive</code> on page 213 <code>show pim rps extensive (PIM Anycast RP in Use)</code> on page 213
Output Fields	Table 62 on page 211 describes the output fields for the show pim rps command. Output fields are listed in the approximate order in which they appear.

Table 62: show pim rps Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the routing instance.	All levels
Family	Name of the address family: inet (IPv4) or inet6 (IPv6).	All levels
RP address	Address of the rendezvous point.	All levels
Type	Type of RP: <ul style="list-style-type: none"> • auto-rp—Address of the RP known through the Auto-RP protocol. • bootstrap—Address of the RP known through the bootstrap router protocol (BSR). • embedded—Address of the RP known through an embedded RP (IPv6). • static—Address of RP known through static configuration. 	brief none
Holdtime	How long to keep the RP active, with time remaining, in seconds.	All levels
Timeout	How long until the local routing device determines the RP to be unreachable, in seconds.	All levels
Groups	Number of groups currently using this RP.	All levels
Group prefixes	Addresses of groups that this RP can span.	brief none
Learned via	Address and method by which the RP was learned.	detail extensive
Time Active	How long the RP has been active, in the format <i>hh:mm:ss</i> .	detail extensive
Device Index	Index value of the order in which the Junos OS finds and initializes the interface.	detail extensive
Subunit	Logical unit number of the interface.	detail extensive
Interface	Either the encapsulation or the de-encapsulation logical interface, depending on whether this routing device is a designated router (DR) facing an RP router, or is the local RP, respectively.	detail extensive
Group Ranges	Addresses of groups that this RP spans.	detail extensive
Active groups using RP	Number of groups currently using this RP.	detail extensive
total	Total number of active groups for this RP.	detail extensive

Table 62: show pim rps Output Fields (*continued*)

Field Name	Field Description	Level of Output
Register State for RP	<p>Current register state for each group:</p> <ul style="list-style-type: none"> • Group—Multicast group address. • Source—Multicast source address for which the PIM register is sent or received, depending on whether this router is a designated router facing an RP router, or is the local RP, respectively: • First Hop—PIM-designated routing device that sent the Register message (the source address in the IP header). • RP Address—RP to which the Register message was sent (the destination address in the IP header). • State: <ul style="list-style-type: none"> On the designated router: <ul style="list-style-type: none"> • Send—Sending Register messages. • Probe—Sent a null register. If a Register-Stop message does not arrive in 5 seconds, the designated router resumes sending Register messages. • Suppress—Received a Register-Stop message. The designated router is waiting for the timer to resume before changing to Probe state. On the RP: <ul style="list-style-type: none"> • Receive—Receiving Register messages. 	extensive
Anycast-PIM rpset	If anycast RP is configured, the addresses of the RPs in the set.	extensive
Anycast-PIM local address used	If anycast RP is configured, the local address used by the RP.	extensive
Anycast-PIM Register State	<p>If anycast RP is configured, the current register state for each group:</p> <ul style="list-style-type: none"> • Group—Multicast group address. • Source—Multicast source address for which the PIM register is sent or received, depending on whether this routing device is a designated router facing an RP router, or is the local RP, respectively. • Origin—How the information was obtained: <ul style="list-style-type: none"> • DIRECT—From a local attachment • MSDP—From the Multicast Source Discovery Protocol (MSDP) • DR—From the designated router 	extensive

```

show pim rps      user@host> show pim rps
                  Instance: PIM.master
                  Address family INET
                  RP address      Type      Holdtime Timeout Groups Group prefixes
                  10.255.14.144   static   0         None      1 224.0.0.0/4

                  Address family INET6

```

show pim rps brief The output for the **show pim rps brief** command is identical to that for the **show pim rps** command. For sample output, see **show pim rps** on page 212.

```

show pim rps instance user@host> show pim rps instance VPN-A

```

```

Instance: PIM.VPN-A
Address family INET
RP address          Type      Holdtime Timeout Groups Group prefixes
10.10.47.100        static    0       None     1 224.0.0.0/4

```

```
Address family INET6
```

```

show pim rps extensive user@host> show pim rps extensive
Instance: PIM.master

```

```

Family: INET
RP: 10.255.245.91
Learned via: static configuration
Time Active: 00:05:48
Holdtime: 45 with 36 remaining
Device Index: 122
Subunit: 32768
Interface: pd-6/0/0.32768
Group Ranges:
  224.0.0.0/4, 36s remaining
Active groups using RP:
  225.1.1.1

```

```
total 1 groups active
```

```
Register State for RP:
```

Group	Source	FirstHop	RP Address	State	Timeout
225.1.1.1	192.168.195.78	10.255.14.132	10.255.245.91	Receive	0

```

show pim rps extensive user@host> show pim rps extensive
(PIM Anycast RP in Instance: PIM.master
Use)

```

```

Family: INET
RP: 10.10.10.2
Learned via: static configuration
Time Active: 00:54:52
Holdtime: 0
Device Index: 130
Subunit: 32769
Interface: pimd.32769
Group Ranges:
  224.0.0.0/4
Active groups using RP:
  224.10.10.10

```

```
total 1 groups active
```

```
Anycast-PIM rpset:
```

```

  10.100.111.34
  10.100.111.17
  10.100.111.55

```

```
Anycast-PIM local address used: 10.100.111.1
```

```
Anycast-PIM Register State:
```

Group	Source	Origin
224.1.1.1	10.10.95.2	DIRECT
224.1.1.2	10.10.95.2	DIRECT
224.10.10.10	10.10.70.1	MSDP
224.10.10.11	10.10.70.1	MSDP
224.20.20.1	10.10.71.1	DR

Address family INET6

Anycast-PIM rpset:

ab::1

ab::2

Anycast-PIM local address used: cd::1

Anycast-PIM Register State:

Group	Source	Origin
::224.1.1.1	::10.10.95.2	DIRECT
::224.1.1.2	::10.10.95.2	DIRECT
::224.20.20.1	::10.10.71.1	DR

show pim source

Syntax	<pre>show pim source <brief detail> <inet inet6> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <source-prefix></pre>
Syntax (EX Series Switch)	<pre>show pim source <brief detail> <inet inet6> <instance <i>instance-name</i>> <source-prefix></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.</p>
Description	Display information about the Protocol Independent Multicast (PIM) source reverse path forwarding (RPF) state.
Options	<p>none—Display standard information about the PIM RPF state for all supported family addresses for all routing instances.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>inet inet6—(Optional) Display information for IPv4 or IPv6 family addresses, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display information about the RPF state for a specific PIM-enabled routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>source-prefix—(Optional) Display the state for source RPF states in the given range.</p>
Required Privilege Level	view
List of Sample Output	<p>show pim source on page 216</p> <p>show pim source brief on page 216</p> <p>show pim source detail on page 216</p>
Output Fields	<p>Table 63 on page 215 describes the output fields for the show pim source command. Output fields are listed in the approximate order in which they appear.</p>

Table 63: show pim source Output Fields

Field Name	Field Description
Instance	Name of the routing instance.

Table 63: show pim source Output Fields (*continued*)

Field Name	Field Description
RPF Address	Address of the source or reverse path.
Prefix/length	Prefix and prefix length for the route used to reach the RPF address.
Upstream interface	RPF interface toward the source address.
Neighbor address	Address of the RPF neighbor used to reach the source address.

show pim source user@host> **show pim source**
 Instance: PIM.master Family: INET

Source 10.255.14.144
 Prefix 10.255.14.144/32
 Upstream interface Local
 Upstream neighbor Local

Source 10.255.70.15
 Prefix 10.255.70.15/32
 Upstream interface so-1/0/0.0
 Upstream neighbor 10.111.10.2

Instance: PIM.master Family: INET6

show pim source brief The output for the **show pim source brief** command is identical to that for the **show pim source** command. For sample output, see **show pim source** on page 216.

show pim source detail user@host> **show pim source detail**
 Instance: PIM.master Family: INET

Source 10.255.14.144
 Prefix 10.255.14.144/32
 Upstream interface Local
 Upstream neighbor Local
 Active groups:228.0.0.0
 239.1.1.1
 239.1.1.1

Source 10.255.70.15
 Prefix 10.255.70.15/32
 Upstream interface so-1/0/0.0
 Upstream neighbor 10.111.10.2
 Active groups:239.1.1.1

Instance: PIM.master Family: INET6

show pim statistics

Syntax	show pim statistics <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show pim statistics <inet inet6> <instance <i>instance-name</i> > <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. inet6 and instance options introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display Protocol Independent Multicast (PIM) statistics.
Options	<p>none—Display PIM statistics.</p> <p>inet inet6—(Optional) Display IPv4 or IPv6 PIM statistics.</p> <p>instance <i>instance-name</i>—(Optional) Display statistics for a specific routing instance enabled by Protocol Independent Multicast (PIM).</p> <p>interface <i>interface-name</i>—(Optional) Display statistics about the specified interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear pim statistics on page 100
List of Sample Output	show pim statistics on page 223
Output Fields	Table 64 on page 217 describes the output fields for the show pim statistics command. Output fields are listed in the approximate order in which they appear.

Table 64: show pim statistics Output Fields

Field Name	Field Description
PIM statistics	PIM statistics for all interfaces or for the specified interface.
PIM message type	Message type for which statistics are displayed.
Received	Number of received statistics.

Table 64: show pim statistics Output Fields (*continued*)

Field Name	Field Description
Sent	Number of messages sent of a certain type.
Rx errors	Number of received packets that contained errors.
V2 Hello	PIM version 2 hello packets.
V2 Register	PIM version 2 register packets.
V2 Register Stop	PIM version 2 register stop packets.
V2 Join Prune	PIM version 2 join and prune packets.
V2 Bootstrap	PIM version 2 bootstrap packets.
V2 Assert	PIM version 2 assert packets.
V2 Graft	PIM version 2 graft packets.
V2 Graft Ack	PIM version 2 graft acknowledgement packets.
V2 Candidate RP	PIM version 2 candidate RP packets.
V1 Query	PIM version 1 query packets.
V1 Register	PIM version 1 register packets.
V1 Register Stop	PIM version 1 register stop packets.
V1 Join Prune	PIM version 1 join and prune packets.
V1 RP Reachability	PIM version 1 RP reachability packets.
V1 Assert	PIM version 1 assert packets.
V1 Graft	PIM version 1 graft packets.
V1 Graft Ack	PIM version 1 graft acknowledgement packets.
AutoRP Announce	Auto-RP announce packets.
AutoRP Mapping	Auto-RP mapping packets.
AutoRP Unknown type	Auto-RP packets with an unknown type.
Anycast Register	Auto-RP announce packets.
Anycast Register Stop	Auto-RP announce packets.

Table 64: show pim statistics Output Fields (*continued*)

Field Name	Field Description
Global Statistics	Summary of PIM statistics for all interfaces.
Hello dropped on neighbor policy	Number of hello packets dropped because of a configured neighbor policy.
Unknown type	Number of PIM control packets received with an unknown type.
V1 Unknown type	Number of PIM version 1 control packets received with an unknown type.
Unknown Version	Number of PIM control packets received with an unknown version. The version is not version 1 or version 2.
Neighbor unknown	Number of PIM control packets received (excluding PIM hello) without first receiving the hello packet.
Bad Length	Number of PIM control packets received for which the packet size does not match the PIM length field in the packet.
Bad Checksum	Number of PIM control packets received for which the calculated checksum does not match the checksum field in the packet.
Bad Receive If	Number of PIM control packets received on an interface that does not have PIM configured.
Rx Bad Data	Number of PIM control packets received that contain data for TCP. Bad register packets.
Rx Intf disabled	Number of PIM control packets received on an interface that has PIM disabled.
Rx V1 Require V2	Number of PIM version 1 control packets received on an interface configured for PIM version 2.
Rx V2 Require V1	Number of PIM version 2 control packets received on an interface configured for PIM version 1.
Rx Register not RP	Number of PIM register packets received when the router is not the RP for the group.
Rx Register no route	Number of PIM register packets received when the RP does not have a unicast route back to source.
Rx Register no decap if	Number of PIM register packets received when the RP does not have a de-encapsulation interface.
Null Register Timeout	Number of NULL register timeout packets.

Table 64: show pim statistics Output Fields (*continued*)

Field Name	Field Description
RP Filtered Source	Number of PIM packets received when the router has a source address filter configured for the RP.
Rx Unknown Reg Stop	Number of register stop messages with an unknown type.
Rx Join/Prune no state	Number of join and prune messages received for which the router has no state.
Rx Join/Prune on upstream if	Number of join and prune messages received on the interface used to reach the upstream router, toward the RP.
Rx Join/Prune messages dropped	Number of join and prune messages received and dropped.
Rx sparse join for dense group	Number of PIM sparse mode join messages received for a group that is configured for dense mode.
Rx Graft/Graft Ack no state	Number of graft and graft acknowledgement messages received for which the router has no state.
Rx Graft on upstream if	Number of graft messages received on the interface used to reach the upstream router, toward the RP.
Rx CRP not BSR	Number of BSR messages received in which the PIM message type is Candidate-RP-Advertisement, not Bootstrap.
Rx BSR when BSR	Number of BSR messages received in which the PIM message type is Bootstrap.
Rx BSR not RPF if	Number of BSR messages received on an interface that is not the RPF interface.
Rx unknown hello opt	Number of PIM hello packets received with options that Junos does not support.
Rx data no state	Number of PIM control packets received for which the router has no state for the data type.
Rx RP no state	Number of PIM control packets received for which the router has no state for the RP.
Rx aggregate	Number of PIM aggregate MDT packets received.
Rx malformed packet	Number of PIM control packets received with a malformed IP unicast or multicast address family.
No RP	Number of PIM control packets received with no RP address.

Table 64: show pim statistics Output Fields (*continued*)

Field Name	Field Description
No register encap if	Number of PIM register packets received when the first-hop router does not have an encapsulation interface.
No route upstream	Number of PIM control packets received when the router does not have a unicast route to the the interface used to reach the upstream router, toward the RP.
Nexthop Unusable	Number of PIM control packets with an unusable nexthop. A path can be unusable if the route is hidden or the link is down.
RP mismatch	Number of PIM control packets received for which the router has an RP mismatch.
RPF neighbor unknown	Number of PIM control packets received for which the router has an unknown RPF neighbor for the source.
Rx Joins/Prunes filtered	The number of join and prune messages filtered because of configured route filters and source address filters.
Tx Joins/Prunes filtered	The number of join and prune messages filtered because of configured route filters and source address filters.
Embedded-RP invalid addr	Number of packets received with an invalid embedded RP address in PIM join messages and other types of messages sent between routing domains.
Embedded-RP limit exceed	Number of times the limit configure with the maximum-rps statement is exceeded. The maximum-rps statement limits the number of embedded RPs created in a specific routing instance. The range is from 1 through 500. The default is 100.
Embedded-RP added	<p>Number of packets in which the embedded RP for IPv6 is added.</p> <p>The following receive events trigger extraction of an IPv6 embedded RP address on the router:</p> <ul style="list-style-type: none"> • Multicast Listener Discovery (MLD) report for an embedded RP multicast group address • PIM join message with an embedded RP multicast group address • Static embedded RP multicast group address associated with an interface • Packets sent to an embedded RP multicast group address received on the DR <p>An embedded RP node discovered through these receive events is added if it does not already exist on the routing platform.</p>
Embedded-RP removed	Number of packets in which the embedded RP for IPv6 is removed. The embedded RP is removed whenever all PIM join states using this RP are removed or the configuration changes to remove the embedded RP feature.

Table 64: show pim statistics Output Fields (*continued*)

Field Name	Field Description
Rx Register msgs filtering drop	Number of register messages dropped because of a filter configured for PIM register messages.
Tx Register msgs filtering drop	Number of register messages dropped because of a filter configured for PIM register messages.

show pim statistics

```

user@host> show pim statistics
PIM Message type      Received      Sent  Rx errors
-----
V2 Hello               15           32      0
V2 Register            0           362     0
V2 Register Stop       483          0      0
V2 Join Prune          18          518     0
V2 Bootstrap           0            0      0
V2 Assert              0            0      0
V2 Graft               0            0      0
V2 Graft Ack           0            0      0
V2 Candidate RP        0            0      0
V1 Query               0            0      0
V1 Register            0            0      0
V1 Register Stop       0            0      0
V1 Join Prune          0            0      0
V1 RP Reachability     0            0      0
V1 Assert              0            0      0
V1 Graft               0            0      0
V1 Graft Ack           0            0      0
AutoRP Announce        0            0      0
AutoRP Mapping         0            0      0
AutoRP Unknown type    0
Anycast Register       0            0      0
Anycast Register Stop  0            0      0

```

Global Statistics

```

Hello dropped on neighbor policy  0
Unknown type                      0
V1 Unknown type                   0
Unknown Version                   0

```

Neighbor unknown	5
Bad Length	0
Bad Checksum	0
Bad Receive If	0
Rx Bad Data	0
Rx Intf disabled	0
Rx V1 Require V2	0
Rx V2 Require V1	0
Rx Register not RP	0
Rx Register no route	0
Rx Register no decap if	0
Null Register Timeout	0
RP Filtered Source	0
Rx Unknown Reg Stop	0
Rx Join/Prune no state	0
Rx Join/Prune on upstream if	0
Rx Join/Prune messages dropped	0
Rx sparse join for dense group	0
Rx Graft/Graft Ack no state	0
Rx Graft on upstream if	0
Rx CRP not BSR	0
Rx BSR when BSR	0
Rx BSR not RPF if	0
Rx unknown hello opt	0
Rx data no state	0
Rx RP no state	0
Rx aggregate	0
Rx malformed packet	0
No RP	0
No register encap if	0
No route upstream	0

Nexthop Unusable	0
RP mismatch	0
RPF neighbor unknown	0
Rx Joins/Prunes filtered	0
Embedded-RP invalid addr	0
Embedded-RP limit exceed	0
Embedded-RP added	0
Embedded-RP removed	0
Rx Register msgs filtering drop	0
Tx Register msgs filtering drop	0

show sap listen

Syntax	show sap listen <brief detail> <logical-system (all <i>logical-system-name</i>)>						
Release Information	Command introduced before Junos OS Release 7.4.						
Description	Display the addresses that the router is listening to in order to receive multicast Session Announcement Protocol (SAP) session announcements.						
Options	<p>none—Display standard information about the addresses that the router is listening to in order to receive multicast SAP session announcements.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>						
Required Privilege Level	view						
List of Sample Output	<p>show sap listen on page 226</p> <p>show sap listen brief on page 226</p> <p>show sap listen detail on page 226</p>						
Output Fields	Table 65 on page 226 describes the output fields for the show sap listen command. Output fields are listed in the approximate order in which they appear.						
Table 65: show sap listen Output Fields <table border="1"> <thead> <tr> <th>Field Name</th><th>Field Description</th></tr> </thead> <tbody> <tr> <td>Group address</td><td>Address of the group that the local router is listening to for SAP messages.</td></tr> <tr> <td>Port</td><td>UDP port number used for SAP.</td></tr> </tbody> </table>		Field Name	Field Description	Group address	Address of the group that the local router is listening to for SAP messages.	Port	UDP port number used for SAP.
Field Name	Field Description						
Group address	Address of the group that the local router is listening to for SAP messages.						
Port	UDP port number used for SAP.						
show sap listen	<pre>user@host> show sap listen Group address Port 224.2.127.254 9875 239.255.255.255 9875</pre>						
show sap listen brief	The output for the show sap listen brief command is identical to that for the show sap listen command. For sample output, see show sap listen on page 226 .						
show sap listen detail	The output for the show sap listen detail command is identical to that for the show sap listen command. For sample output, see show sap listen on page 226 .						

test msdp

Syntax	test msdp (dependent-peers <i>prefix</i> rpf-peer <i>originator</i>) <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Find Multicast Source Discovery Protocol (MSDP) peers.
Options	<p>dependent-peers <i>prefix</i>—Find downstream dependent MSDP peers.</p> <p>rpf-peer <i>originator</i>—Find the MSDP reverse-path-forwarding (RPF) peer for the originator.</p> <p>instance <i>instance-name</i>—(Optional) Find MDSP peers for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	test msdp dependent-peers on page 227
Output Fields	When you enter this command, you are provided feedback on the status of your request.
test msdp dependent-peers	user@host> test msdp dependent-peers 10.0.0.1/24

CHAPTER 6

IPv6 Operational Mode Commands

Table 66 on page 229 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Internet Protocol version 6 (IPv6). Commands are listed in alphabetical order.

Table 66: IPv6 Operational Mode Commands

Task	Command
Clear IPv6 neighbor cache information.	clear ipv6 neighbors
Clear IPv6 router advertisement counters.	clear ipv6 router-advertisement
Display neighbor discovery information.	show ipv6 neighbors
Display router advertisement information.	show ipv6 router-advertisement



NOTE: For information about how to configure IPv6 parameters, see the *Junos OS Routing Protocols Configuration Guide*.

clear ipv6 neighbors

Syntax	clear ipv6 neighbors <all host <i>hostname</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.3 for EX Series switches.
Description	Clear IPv6 neighbor cache information.
Options	none—Clear all IPv6 neighbor cache information. all—(Optional) Clear all IPv6 neighbor cache information. host <i>hostname</i> —(Optional) Clear the information for the specified IPv6 neighbors.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• show ipv6 neighbors on page 232
List of Sample Output	clear ipv6 neighbors on page 230
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ipv6 neighbors	user@host> clear ipv6 neighbors

clear ipv6 router-advertisement

Syntax	clear ipv6 router-advertisement <interface <i>interface</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear IPv6 router advertisement counters.
Options	<p>none—Clear IPv6 router advertisement counters for all interfaces.</p> <p>interface <i>interface</i>—(Optional) Clear IPv6 router advertisement counters for the specified interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show ipv6 router-advertisement on page 234
List of Sample Output	clear ipv6 router-advertisement on page 231
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ipv6 router-advertisement	user@host> clear ipv6 router-advertisement

show ipv6 neighbors

Syntax	show ipv6 neighbors
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.3 for EX Series switches.
Description	Display information about the IPv6 neighbor cache.
Options	This command has no options.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ipv6 neighbors on page 230
List of Sample Output	show ipv6 neighbors on page 232 show ipv6 neighbors on page 232
Output Fields	Table 67 on page 232 describes the output fields for the show ipv6 neighbors command. Output fields are listed in the approximate order in which they appear.

Table 67: show ipv6 neighbors Output Fields

Field Name	Field Description
IPv6 Address	Name of the IPv6 interface.
Linklayer Address	Link-layer address.
State	State of the link: up , down , incomplete , reachable , stale , or unreachable .
Exp	Number of seconds until the entry expires.
Rtr	Whether the neighbor is a routing device: yes or no .
Secure	Whether this entry was created using the Secure Neighbor Discovery (SEND) protocol: yes or no .
Interface	Name of the interface.

show ipv6 neighbors	<pre> user@host> show ipv6 neighbors IPv6 Address Linklayer Address State Exp Rtr Interface fe80::2a0:c9ff:fe5b:4c1e 00:a0:c9:5b:4c:1e reachable 15 yes fxp0.0 </pre>
show ipv6 neighbors	<pre> user@host > show ipv6 neighbors IPv6 Address Linklayer Address State Exp Rtr Secure Interface </pre>

```
fe80::14fb:5dcf:54bd:ff76    00:90:69:a0:a8:bc    stale    1113 yes yes
ge-3/2/0.0
```

show ipv6 router-advertisement

Syntax	show ipv6 router-advertisement <conflicts> <interface <i>interface</i> > <logical-system (all <i>logical-system-name</i>)> <prefix <i>prefix/prefix length</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about IPv6 router advertisements, including statistics about messages sent and received on interfaces, and information received from advertisements from other routers.
Options	<p>none—Display all IPv6 router advertisement information for all interfaces.</p> <p>conflicts—(Optional) Display only the IPv6 router advertisement information that is conflicting.</p> <p>interface <i>interface</i>—(Optional) Display IPv6 router advertisement information for the specified interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>prefix <i>prefix/prefix length</i>—(Optional) Display IPv6 router advertisement information for the specified prefix.</p>
Additional Information	The display identifies conflicting information by enclosing the value the router is advertising in brackets.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ipv6 router-advertisement on page 231
List of Sample Output	<p>show ipv6 router-advertisement on page 235</p> <p>show ipv6 router-advertisement conflicts on page 236</p> <p>show ipv6 router-advertisement prefix on page 236</p>
Output Fields	Table 68 on page 234 describes the output fields for the show ipv6 router-advertisement command. Output fields are listed in the approximate order in which they appear.

Table 68: show ipv6 router-advertisement Output Fields

Field Name	Field Description
Interface	Name of the interface.
Advertisements sent	Number of router advertisements sent and elapsed time since they were sent.

Table 68: show ipv6 router-advertisement Output Fields (*continued*)

Field Name	Field Description
Solicits received	Number of solicitation messages received.
Advertisements received	Number of router advertisements received.
Advertisements from	Names of interfaces from which router advertisements have been received and elapsed time since the last one was received.
Managed	Managed address configuration flag: 0 (stateless) or 1 (stateful).
Other configuration	Other stateful configuration flag: 0 (stateless) or 1 (stateful).
Reachable time	Time that a node identifies a neighbor as reachable after receiving a reachability confirmation, in milliseconds.
Default lifetime	Default lifetime, in seconds: from 0 seconds to 18.2 hours. A setting of 0 indicates that the router is not a default router.
Retransmit timer	Time between retransmitted Neighbor Solicitation messages, in milliseconds.
Current hop limit	Configured current hop limit.
Prefix	Name and length of the prefix.
Valid lifetime	How long the prefix remains valid for onlink determination.
Preferred lifetime	How long the prefix generated by stateless autoconfiguration remains preferred.
On link	Onlink flag: 0 (not onlink) or 1 (onlink).
Autonomous	Autonomous address configuration flag: 0 (not autonomous) or 1 (autonomous).

```

show ipv6      user@host> show ipv6 router-advertisement
router-advertisement
Interface: fe-0/1/1.0
  Advertisements sent: 0
  Solicits received: 0
  Advertisements received: 0
Interface: fxp0.0
  Advertisements sent: 0
  Solicits received: 0
  Advertisements received: 1
  Advertisement from fe80::2d0:b7ff:fe1e:7b0e, heard 00:00:13 ago
  Managed: 0
  Other configuration: 0 [1]
    Reachable time: 0 ms
    Default lifetime: 1800 sec
    Retransmit timer: 0 ms
    Current hop limit: 64

```

```
show ipv6 router-advertisement conflicts user@host> show ipv6 router-advertisement conflicts
Interface: fxp0.0
Advertisement from fe80::2d0:b7ff:fe1e:7b0e, heard 00:01:08 ago
Other configuration: 0 [1]

show ipv6 router-advertisement prefix user@host> show ipv6 router-advertisement prefix 8040::/16
Interface: fe-0/1/3.0
Advertisements sent: 3, last sent 00:04:11 ago
Solicits received: 0
Advertisements received: 3
Advertisement from fe80::290:69ff:fe9a:5403, heard 00:00:05 ago
Managed: 0
Other configuration: 0
Reachable time: 0 ms
Default lifetime: 180 sec [1800 sec]
Retransmit timer: 0 ms
Current hop limit: 64
Prefix: 8040:1::/64
Valid lifetime: 2592000 sec
Preferred lifetime: 604800 sec
On link: 1
Autonomous: 1
```

CHAPTER 7

IS-IS Operational Mode Commands

Table 69 on page 237 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Intermediate System-to-Intermediate System (IS-IS) protocol. Commands are listed in alphabetical order.

Table 69: IS-IS Operational Mode Commands

Task	Command
Remove adjacencies.	clear isis adjacency
Remove database entries.	clear isis database
Reset IS-IS dynamic overload bit.	clear isis overload
Set IS-IS traffic statistics to zero.	clear isis statistics
Display adjacent routers.	show isis adjacency
Display authentication statistics.	show isis authentication
Display information about the level of backup coverage available for protected routes.	show isis backup coverage
Display information about MPLS LSPs designated as backup paths.	show isis backup label-switched-path
Display SPF calculations for backup paths.	show isis backup spf results
Display database entries.	show isis database
Display hostname mapping.	show isis hostname
Display the status of interfaces on which IS-IS is running.	show isis interface
Display IS-IS overview information.	show isis overview
Display IS-IS routing table entries.	show isis route

Table 69: IS-IS Operational Mode Commands (*continued*)

Task	Command
Display SPF calculations.	show isis spf
Display IS-IS traffic statistics.	show isis statistics



NOTE: For more IS-IS-related commands, such as `show route protocol`, `show route instance`, and `show route table`, see Protocol-Independent Routing Operational Mode Commands. For information about monitoring Bidirectional Forwarding Detection (BFD) sessions for IS-IS clients, see BFD Operational Mode Commands. For information about how to configure IS-IS, see the *Junos Routing Protocols Configuration Guide*.



NOTE: In IS-IS command output, the CLI displays the system ID numerically by default. To display the hostname instead, include the `static-host-mapping` statement at the `[edit system]` hierarchy level of the configuration.

clear isis adjacency

Syntax	clear isis adjacency <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)> < <i>neighbor</i> >
Syntax (EX Series Switch)	clear isis adjacency <instance <i>instance-name</i> > <interface <i>interface-name</i> > < <i>neighbor</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Remove entries from the Intermediate System-to-Intermediate System (IS-IS) adjacency database.
Options	<p>none—Remove all entries from the adjacency database.</p> <p>instance <i>instance-name</i>—(Optional) Clear all adjacencies for the specified routing instance only.</p> <p>interface <i>interface-name</i>—(Optional) Clear all adjacencies for the specified interface only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>neighbor</i>—(Optional) Clear adjacencies for the specified neighbor only.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show isis adjacency on page 247
List of Sample Output	clear isis adjacency on page 239
Output Fields	See show isis adjacency for an explanation of output fields.
clear isis adjacency	The following sample output displays IS-IS adjacency database information before and after the clear isis adjacency command is entered:

```

user@host> show isis adjacency
IS-IS adjacency database:
Interface      System          L State      HoId (secs) SNPA
so-1/0/0.0     karaku1         3 Up         26
so-1/1/3.0     1921.6800.5080 3 Up         23
so-5/0/0.0     1921.6800.5080 3 Up         19

user@host> clear isis adjacency karaku1


```

```
user@host> show isis adjacency
```

```
IS-IS adjacency database:
```

Interface	System	L State	Hold (secs)	SNPA
so-1/0/0.0	karakul	3 Initializing	26	
so-1/1/3.0	1921.6800.5080	3 Up	24	
so-5/0/0.0	1921.6800.5080	3 Up	21	

clear isis database

Syntax	clear isis database <entries> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <purge>
Syntax (EX Series Switch)	clear isis database <entries> <instance <i>instance-name</i> > <purge>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. purge option introduced in Junos OS Release 9.0.
Description	Remove the entries from the Intermediate System-to-Intermediate System (IS-IS) link-state database, which contains prefixes and topology information. You can also use purge with any of the options to initiate a network-wide purge of link-state PDUs (LSPs) rather than the local deletion of entries from the IS-IS link-state database.
<div>  <p>CAUTION: In a production network, the purge command option may cause short-term network-wide traffic disruptions. Use with caution!</p> </div>	
Options	<p>none—Remove all entries from the IS-IS link-state database for all routing instances.</p> <p><i>entries</i>—(Optional) Name of the database entry.</p> <p>instance <i>instance-name</i>—(Optional) Clear all entries for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>purge—(Optional) Discard all entries in the IS-IS link-state database.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show isis database on page 260
List of Sample Output	clear isis database on page 241
Output Fields	See show isis database for an explanation of output fields.
clear isis database	The following sample output displays IS-IS link-state database information before and after the clear isis database command is entered:

```
user@host> show isis database
IS-IS level 1 link-state database:
LSP ID                Sequence Checksum Lifetime (secs)
crater.00-00          0x12  0x84dd                1139
1 LSPs
IS-IS level 2 link-state database:
LSP ID                Sequence Checksum Lifetime (secs)
crater.00-00          0x19  0xe92c                1134
badlands.00-00        0x16  0x1454                 985
carlsbad.00-00         0x33  0x220b                1015
ranier.00-00           0x2e  0xfc31                1007
1921.6800.5066.00-00   0x11  0x7313                 566
1921.6800.5067.00-00   0x14  0xd9d4                 939
6 LSPs
```

```
user@host> clear isis database
```

```
user@host> show isis database
IS-IS level 1 link-state database:
LSP ID                Sequence Checksum Lifetime (secs)

IS-IS level 2 link-state database:
LSP ID                Sequence Checksum Lifetime (secs)
```


clear isis overload

Syntax	clear isis overload <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear isis overload <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Reset the Intermediate System-to-Intermediate System (IS-IS) dynamic overload bit. This command can appear to not work, continuing to display overload after execution. The bit is reset only if the root cause is corrected by configuration remotely or locally.
Options	<p>none—Reset the IS-IS dynamic overload bit.</p> <p>instance <i>instance-name</i>—(Optional) Reset the IS-IS dynamic overload bit for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show isis database on page 260
List of Sample Output	clear isis overload on page 243
Output Fields	See show isis database for an explanation of output fields.
clear isis overload	<p>The following sample output displays IS-IS database information before and after the clear isis overload command is entered:</p> <pre> user@host> show isis database IS-IS level 1 link-state database: LSP ID Sequence Checksum Lifetime Attributes pro3-c.00-00 0x4 0x10db 1185 L1 L2 Overload 1 LSPs IS-IS level 2 link-state database: LSP ID Sequence Checksum Lifetime Attributes pro3-c.00-00 0x5 0x429f 1185 L1 L2 Overload pro2-a.00-00 0x91e 0x2589 874 L1 L2 pro2-a.02-00 0x1 0xcbc 874 L1 L2 3 LSPs user@host> clear isis overload </pre>

```
user@host> show isis database
```

```
IS-IS level 1 link-state database:
```

LSP ID	Sequence	Checksum	Lifetime	Attributes
pro3-c.00-00	0xa	0x429e	1183	L1 L2

1 LSPs

```
IS-IS level 2 link-state database:
```

LSP ID	Sequence	Checksum	Lifetime	Attributes
pro3-c.00-00	0xc	0x9c39	1183	L1 L2
pro2-a.00-00	0x91e	0x2589	783	L1 L2
pro2-a.02-00	0x1	0xcbc	783	L1 L2

3 LSPs

clear isis statistics

Syntax	clear isis statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear isis statistics <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Set statistics about Intermediate System-to-Intermediate System (IS-IS) traffic to zero.
Options	none—Set IS-IS traffic statistics to zero for all routing instances. instance <i>instance-name</i> —(Optional) Set IS-IS traffic statistics to zero for the specified routing instance only. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show isis statistics on page 283
List of Sample Output	clear isis statistics on page 245
Output Fields	See show isis statistics for an explanation of output fields.

clear isis statistics The following sample output displays IS-IS statistics before and after the **clear isis statistics** command is entered:

```
user@host> show isis statistics
IS-IS statistics for merino:
```

PDU type	Received	Processed	Drops	Sent	Rexmit
LSP	12793	12793	0	8666	719
IIH	116751	116751	0	118834	0
CSNP	203956	203956	0	204080	0
PSNP	7356	7350	6	8635	0
Unknown	0	0	0	0	0
Totals	340856	340850	6	340215	719

```
Total packets received: 340856 Sent: 340934

SNP queue length:          0 Drops:          0
LSP queue length:          0 Drops:          0

SPF runs:                  1064
Fragments rebuilt:         1087
LSP regenerations:         436
```

Purges initiated: 0

user@host> clear isis statistics

user@host> show isis statistics
IS-IS statistics for merino:

PDU type	Received	Processed	Drops	Sent	Rexmit
LSP	0	0	0	0	0
IIH	3	3	0	3	0
CSNP	2	2	0	4	0
PSNP	0	0	0	0	0
Unknown	0	0	0	0	0
Totals	5	5	0	7	0

Total packets received: 5 Sent: 7

SNP queue length: 0 Drops: 0
LSP queue length: 0 Drops: 0

SPF runs: 0
Fragments rebuilt: 0
LSP regenerations: 0
Purges initiated: 0

show isis adjacency

Syntax	show isis adjacency <brief detail extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show isis adjacency <brief detail extensive> <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Intermediate System-to-Intermediate System (IS-IS) neighbors.
Options	none—Display standard information about IS-IS neighbors for all routing instances. brief detail extensive—(Optional) Display the specified level of output. instance <i>instance-name</i> —(Optional) Display adjacencies for the specified routing instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear isis adjacency on page 239
List of Sample Output	show isis adjacency on page 249 show isis adjacency brief on page 249 show isis adjacency detail on page 249 show isis adjacency extensive on page 250
Output Fields	Table 70 on page 247 describes the output fields for the show isis adjacency command. Output fields are listed in the approximate order in which they appear.

Table 70: show isis adjacency Output Fields

Field Name	Field Description	Level of Output
Interface	Interface through which the neighbor is reachable.	All levels
System	System identifier (sysid), displayed as a name, if possible.	brief

Table 70: show isis adjacency Output Fields (*continued*)

Field Name	Field Description	Level of Output
L or Level	Level: <ul style="list-style-type: none"> • 1—Level 1 only • 2—Level 2 only • 3—Level 1 and Level 2 An exclamation point (!) preceding the level number indicates that the adjacency is missing an IP address.	All levels
State	State of the adjacency: Up , Down , New , One-way , Initializing , or Rejected .	All levels
Hold (secs)	Remaining hold time of the adjacency.	brief
SNPA	Subnetwork point of attachment (MAC address of the next hop).	brief
Expires in	How long until the adjacency expires, in seconds.	detail
Priority	Priority to become the designated intermediate system.	detail extensive
Up/Down transitions	Count of adjacency status changes from Up to Down or from Down to Up .	detail
Last transition	Time of the last Up/Down transition.	detail
Circuit type	Bit mask of levels on this interface: L1 =Level 1 router; L2 =Level 2 router; L1/L2 =both Level 1 and Level 2 router.	detail
Speaks	Protocols supported by this neighbor.	detail extensive
MAC address	MAC address of the interface.	detail extensive
Topologies	Supported topologies.	detail extensive
Restart capable	Whether a neighbor is capable of graceful restart: Yes or No .	detail extensive
Adjacency advertisement: Advertise	This router has signaled not to advertise this interface to its neighbors in their label-switched paths (LSPs).	detail extensive
Adjacency advertisement: Suppress	This neighbor has signaled not to advertise the interface in the router's outbound LSPs.	detail extensive
IP addresses	IP address of this neighbor.	detail extensive

Table 70: show isis adjacency Output Fields (*continued*)

Field Name	Field Description	Level of Output
Transition log	<p>List of recent transitions, including:</p> <ul style="list-style-type: none"> • When—Time at which an IS-IS adjacency transition occurred. • State—Current state of the IS-IS adjacency (up, down, or rejected). <ul style="list-style-type: none"> • Up—Adjacency is up and operational. • Down—Adjacency is down and not available. • Rejected—Adjacency has been rejected. • Event—Type of transition that occurred. <ul style="list-style-type: none"> • Seenself—Possible routing loop has been detected. • Interface down—IS-IS interface has gone down and is no longer available. • Error—Adjacency error. • Down reason—Reason that an IS-IS adjacency is down: <ul style="list-style-type: none"> • 3-Way Handshake Failed—Connection establishment failed. • Address Mismatch—Address mismatch caused link failure. • Aged Out—Link expired. • ISO Area Mismatch—IS-IS area mismatch caused link failure. • Bad Hello—Unacceptable hello message caused link failure. • BFD Session Down—Bidirectional failure detection caused link failure. • Interface Disabled—IS-IS interface is disabled. • Interface Down—IS-IS interface is unavailable. • Interface Level Disabled—IS-IS level is disabled. • Level Changed—IS-IS level has changed on the adjacency. • Level Mismatch—Levels on adjacency are not compatible. • MPLS LSP Down—Label-switched path (LSP) is unavailable. • MT Topology Changed—IS-IS topology has changed. • MT Topology Mismatch—IS-IS topology is mismatched. • Remote System ID Changed—Adjacency peer system ID changed. • Protocol Shutdown—IS-IS protocol is disabled. • CLI Command—Adjacency brought down by user. • Unknown—Unknown. 	extensive

```

show isis adjacency  user@host> show isis adjacency
                    Interface      System      L State      Hold (secs) SNPA
                    at-2/3/0.0     ranier      3 Up         23

```

show isis adjacency brief The output for the **show isis adjacency brief** command is identical to that for the **show isis adjacency** command. For sample output, see **show isis adjacency** on page 249.

```

show isis adjacency  user@host> show isis adjacency detail
detail              ranier
                    Interface: at-2/3/0.0, Level: 3, State: Up, Expires in 21 secs
                    Priority: 0, Up/Down transitions: 1, Last transition: 00:01:09 ago
                    Circuit type: 3, Speaks: IP, IPv6
                    Topologies: Unicast

```

Restart capable: Yes
IP addresses: 11.1.1.2

show isis adjacency user@host> **show isis adjacency extensive**
extensive ranier

Interface: at-2/3/0.0, Level: 3, State: Up, Expires in 22 secs
Priority: 0, Up/Down transitions: 1, Last transition: 00:01:16 ago
Circuit type: 3, Speaks: IP, IPv6
Topologies: Unicast
Restart capable: Yes
IP addresses: 11.1.1.2
Transition log:

When	State	Event	Down reason
Wed Nov 8 21:24:25	Up	Seenself	

show isis authentication

Syntax	show isis authentication <brief detail extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show isis authentication <brief detail extensive> <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 7.5. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Intermediate System-to-Intermediate System (IS-IS) authentication.
Options	none—Display information about IS-IS authentication. brief detail extensive—(Optional) Display the specified level of output. instance <i>instance-name</i> —(Optional) Display IS-IS authentication for the specified routing instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show isis authentication on page 252
Output Fields	Table 71 on page 251 describes the output fields for the show isis authentication command. Output fields are listed in the approximate order in which they appear.

Table 71: show isis authentication Output Fields

Field Name	Field Description
Interface	Interface name.
Level	IS-IS level.
IIH Auth	IS-IS Hello (IIH) packet authentication type.
CSN Auth	Complete sequence number authentication type.
PSN Auth	Partial sequence number authentication type.
L1 LSP Authentication	Layer 1 link-state PDU authentication type.

Table 71: show isis authentication Output Fields (*continued*)

Field Name	Field Description
L2 LSP Authentication	Layer 2 link-state PDU authentication type.

```
show isis authentication user@host> show isis authentication
Interface               Level IIH Auth  CSN Auth  PSN Auth
at-2/3/0.0              1      Simple   Simple    Simple
                        2      MD5      MD5       MD5

L1 LSP Authentication: Simple
L2 LSP Authentication: MD5
```

show isis backup coverage

Syntax	<code>show isis backup coverage</code> <code><instance <i>instance-name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>show isis backup coverage</code> <code><instance <i>instance-name</i>></code>
Release Information	Command introduced in Junos OS Release 9.5. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about the level of backup coverage available.
Options	<p><code>none</code>—Display information about the level of backup coverage available for all the nodes and prefixes in the network.</p> <p><code>instance <i>instance-name</i></code>—(Optional) Display information about the level of backup coverage for a specific IS-IS routing instance.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show isis backup label-switched-path on page 255
List of Sample Output	show isis backup coverage on page 254
Output Fields	Table 72 on page 253 lists the output fields for the show isis backup coverage command. Output fields are listed in the approximate order in which they appear.

Table 72: show isis backup coverage Output Fields

Field Name	Field Description
Topology	Type of topology or address family: IPv4 Unicast or IPv6 Unicast .
Level	IS-IS level: <ul style="list-style-type: none"> • 1—Level 1 • 2—Level 2
Node	By topology, the percentage of all routes configured on the node that are protected through backup coverage.
IPv4 Unicast	Percentage of IPv4 unicast routes that are protected through backup coverage.
IPv6 Unicast	Percentage of IPv6 unicast routes that are protected through backup coverage.

Table 72: show isis backup coverage Output Fields (*continued*)

Field Name	Field Description
CLNS	Percentage of Connectionless Network Service (CLNS) routes that are protected through backup coverage.

```
show isis backup coverage user@host> show isis backup coverage
Backup Coverage:
  Topology  Level  Node   IPv4   IPv6   CLNS
  IPV4 Unicast    2  28.57% 22.22% 0.00% 0.00%
  IPV6 Unicast    2   0.00% 0.00% 0.00% 0.00%
```

show isis backup label-switched-path

Syntax	show isis backup label-switched-path <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show isis backup label-switched-path
Release Information	Command introduced in Junos OS Release 9.5. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about MPLS label-switched-paths (LSPs) designated as backup routes for IS-IS routes.
Options	<p>none—Display information about MPLS LSPs designated as backup routes for IS-IS routes.</p> <p>logical-system (all <i>logical-system-name</i>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show isis backup coverage on page 253
List of Sample Output	show isis backup label-switched-path on page 256
Output Fields	Table 73 on page 255 lists the output fields for the show isis backup label-switched-path command. Output fields are listed in the approximate order in which they appear.

Table 73: show isis backup label-switched-path Output Fields

Field Name	Field Description
Backup MPLS LSPs	List of MPLS LSPs designated as backup paths for IS-IS routes.
Egress	IP address of the egress routing device for the LSP.
Status	<p>State of the LSP:</p> <ul style="list-style-type: none"> • Up—The router can detect RSVP hello messages from the neighbor. • Down—The router has received one of the following indications: <ul style="list-style-type: none"> • Communication failure from the neighbor. • Communication from IGP that the neighbor is unavailable. • Change in the sequence numbers in the RSVP hello messages sent by the neighbor. • Deleted—LSP is no longer available as a backup path.
Last change	Time elapsed since the neighbor state changed either from up or down or from down to up. The format is <i>hh:mm:ss</i> .
TE-metric	Configured traffic engineering metric.

Table 73: show isis backup label-switched-path Output Fields (*continued*)

Field Name	Field Description
Metric	Configured metric.

```
show isis backup label-switched-path user@host> show isis backup label-switched-path
Backup MPLS LSPs:
f-to-g, Egress: 192.168.1.4, Status: up, Last change: 06:12:03
TE-metric: 9, Metric: 0
```

show isis backup spf results

Syntax	<pre>show isis backup spf results <instance <i>instance-name</i>> <level (1 2)> <logical-system (all <i>logical-system-name</i>)> <no-coverage> <topology (ipv4-unicast ipv6-multicast ipv6-unicast unicast)></pre>
Syntax (EX Series Switch)	<pre>show isis backup spf results <instance <i>instance-name</i>> <level (1 2)> <no-coverage> <topology (ipv4-unicast unicast)></pre>
Release Information	<p>Command introduced in Junos OS Release 9.5.</p> <p>Command introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	Display information about IS-IS shortest-path-first (SPF) calculations for backup paths.
Options	<p>none—Display information about IS-IS shortest-path-first (SPF) calculations for all backup paths for all destination nodes.</p> <p>instance <i>instance-name</i>—(Optional) Display SPF calculations for backup paths for the specified routing instance.</p> <p>level (1 2)—(Optional) Display SPF calculations for the backup paths for the specified IS-IS level.</p> <p>logical-system <i>logical-system-name</i>—(Optional) Display SPF calculations for the backup paths for all logical systems or on a particular logical system.</p> <p>no-coverage—(Optional) Display SPF calculations only for destinations that do not have backup coverage.</p> <p>topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)—(Optional) Display SPF calculations for backup paths for the specified topology only.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show isis backup coverage on page 253
List of Sample Output	show isis backup spf results on page 258
Output Fields	<p>Table 74 on page 258 lists the output fields for the show isis backup spf results command. Output fields are listed in the approximate order in which they appear.</p>

Table 74: show isis backup spf results Output Fields

Field Name	Field Description
<i>node-name</i>	Name of the destination node.
Address	Address of the destination node.
Primary next-hop	Interface and name of the node of the primary next hop to reach the destination.
Root	Name of the next-hop neighbor.
Metric	Metric to the node.
Eligible	Indicates that the next-hop neighbor has been designated as a backup path to the destination node.
Backup next-hop	Name of the interface of the backup next hop.
SNPA	Subnetwork point of attachment (MAC address of the next hop).
LSP	Name of the MPLS LSP designated as a backup path.
Not eligible	Indicates that the next-hop neighbor cannot function as a backup path to the destination.
Reason	Describes why the next-hop neighbor is designated as Not eligible as a backup path.

**show isis backup spf
results**

```

user@host> show isis backup spf results
IS-IS level 1 SPF results:
  0 nodes

IS-IS level 2 SPF results:
kobuk.00, Address 0x8d85600
  Primary next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
  Primary next-hop: so-0/1/2.0, crater
  Primary next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
  Primary next-hop: so-0/1/2.0, crater
  Root: crater, Metric: 10
  Not eligible, Reason: Primary next-hop multipath
  Root: camaro, Metric: 10
  Not eligible, Reason: Primary next-hop multipath
  Root: olympic, Metric: 25
  Not eligible, Reason: Primary next-hop multipath
glacier.00, Address 0x8d85200
  Primary next-hop: so-0/1/2.0, crater
  Primary next-hop: so-0/1/2.0, crater
  Root: crater, Metric: 10
  Not eligible, Reason: Primary next-hop link fate sharing
  Root: olympic, Metric: 15
  Eligible, Backup next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
  Eligible, Backup next-hop: so-1/0/2.0, olympic
  Eligible, Backup next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa

```



```

    Eligible, Backup next-hop: so-1/0/2.0, olympic
Root: camaro, Metric: 20
    Eligible, Backup next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
    Eligible, Backup next-hop: so-1/0/2.0, olympic
    Eligible, Backup next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
    Eligible, Backup next-hop: so-1/0/2.0, olympic
olympic.00, Address 0x8d00c00
Primary next-hop: so-1/0/2.0, olympic
Primary next-hop: so-1/0/2.0, olympic
Root: olympic, Metric: 0
    Not eligible, Reason: Primary next-hop link fate sharing
Root: crater, Metric: 20
    track-item: olympic.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
Root: camaro, Metric: 20
    track-item: olympic.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
camaro.00, Address 0x8d85a00
Primary next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
Primary next-hop: ge-0/2/0.0, camaro, SNPA: 0:90:69:f:62:fa
Root: camaro, Metric: 0
    Not eligible, Reason: Primary next-hop link fate sharing
Root: crater, Metric: 20
    track-item: camaro.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
Root: olympic, Metric: 20
    track-item: camaro.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
crater.00, Address 0x8d85000
Primary next-hop: so-0/1/2.0, crater
Primary next-hop: so-0/1/2.0, crater
Root: crater, Metric: 0
    Not eligible, Reason: Primary next-hop link fate sharing
Root: camaro, Metric: 20
    track-item: crater.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
Root: olympic, Metric: 20
    track-item: crater.00-00
    track-item: banff.00-00
    Not eligible, Reason: Path loops
5 nodes

```

show isis database

Syntax	<pre>show isis database <brief detail extensive> <instance <i>instance-name</i>> <level (1 2)> <logical-system (all <i>logical-system-name</i>)></pre>
Syntax (EX Series Switch)	<pre>show isis database <brief detail extensive> <level (1 2)> <instance <i>instance-name</i>></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p>
Description	Display the entries in the Intermediate System-to-Intermediate System (IS-IS) link-state database, which contains data about PDU packets.
Options	<p>none—Display standard information about IS-IS link-state database entries for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display entries for the specified routing instance.</p> <p>level (1 2)—(Optional) Display entries for the specified IS-IS level.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear isis database on page 241
List of Sample Output	<p>show isis database on page 262</p> <p>show isis database brief on page 262</p> <p>show isis database detail on page 263</p> <p>show isis database extensive on page 264</p> <p>show isis database extensive (CLNS) on page 265</p>
Output Fields	<p>Table 75 on page 261 describes the output fields for the show isis database command. Output fields are listed in the approximate order in which they appear. Fields that contain internal IS-IS information useful only in troubleshooting obscure problems are not described in the table. For more details about these fields, contact your customer support representative.</p>

Table 75: show isis database Output Fields

Field Name	Field Description	Level of Output
Interface name	Name of the interface on which the LSP has been received; always IS-IS for this command.	All levels
level	Level of intermediate system: <ul style="list-style-type: none"> • 1—Intermediate system routes within an area; when the destination is outside an area, it routes toward a Level 2 system. • 2—Intermediate system routes between areas and toward other ASs. 	All levels
LSP ID	Link-state PDU identifier.	All levels
Sequence	Sequence number of the link-state PDU.	All levels
Checksum	Checksum value of the link-state PDU.	All levels
Lifetime (secs)	Remaining lifetime of the link-state PDU, in seconds.	All levels
Attributes	Attributes of the specified database: L1 , L2 , Overload , or Attached (L1 only).	none brief
# LSPs	Total number of LSPs in the specified link-state database.	none brief
IP prefix	Prefix advertised by this link-state PDU.	detail extensive
IS neighbor	IS-IS neighbor of the advertising system.	detail extensive
ES neighbor	(J Series routers only) An ES-IS neighbor of the advertising system.	detail extensive
IP prefix	IPv4 prefix advertised by this link-state PDU.	detail extensive
V6 prefix	IPv6 prefix advertised by this link-state PDU.	detail extensive
Metric	Metric of the prefix or neighbor.	detail extensive
Header	<ul style="list-style-type: none"> • LSP ID—Link state PDU identifier of the header. • Length—Header length. • Allocated Length—Amount of length available for the header. • Router ID—Address of the local routing device. • Remaining Lifetime—Remaining lifetime of the link-state PDU, in seconds. 	extensive

Table 75: show isis database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Packet	<ul style="list-style-type: none"> • LSP ID—The identifier for the link-state packet. • Length—Packet length. • Lifetime—Remaining lifetime, in seconds. • Checksum—The checksum of the LSP. • Sequence—The sequence number of the LSP. Every time the LSP is updated, this number increments. • Attributes—Packet attributes. • NLPID—Network layer protocol identifier. • Fixed length—Specifies the set length for the packet. 	extensive
TLVs	<ul style="list-style-type: none"> • Area Address—Area addresses that the routing device can reach. • Speaks—Supported routing protocols. • IP router id—ID of the routing device (usually the IP address). • IP address—IPv4 address. • Hostname—Assigned name of the routing device. • IP prefix—IP prefix of the routing device. • Metric—IS-IS metric that measures the cost of the adjacency between the originating routing device and the advertised routing device. • IP extended prefix—Extended IP prefix of the routing device. • IS neighbor—Directly attached neighbor's name and metric. • IS extended neighbor—Directly attached neighbor's name, metric, and IP address. 	extensive

```

show isis database  user@host> show isis database
IS-IS level 1 link-state database:
LSP ID                Sequence Checksum Lifetime Attributes
kobuk.00-00            0x3     0x3167    1057 L1 L2
camaro.00-00           0x5     0x770e    1091 L1 L2
ranier.00-00           0x4     0xaa95    1091 L1 L2
glacier.00-00          0x4     0x206f    1089 L1 L2
glacier.02-00          0x1     0xd141    1089 L1 L2
badlands.00-00        0x3     0x87a2    1093 L1 L2
6 LSPs

IS-IS level 2 link-state database:
LSP ID                Sequence Checksum Lifetime Attributes
kobuk.00-00            0x6     0x8d6b    1096 L1 L2
camaro.00-00           0x9     0x877b    1101 L1 L2
ranier.00-00           0x8     0x855d    1103 L1 L2
glacier.00-00          0x7     0xf892    1098 L1 L2
glacier.02-00          0x1     0xd141    1089 L1 L2
badlands.00-00        0x6     0x562     1105 L1 L2
6 LSPs

```

show isis database brief The output for the **show isis database brief** command is identical to that for the **show isis database** command. For sample output, see **show isis database** on page 262.

```

show isis database user@host> show isis database detail
detail IS-IS level 1 link-state database:

kobuk.00-00 Sequence: 0x3, Checksum: 0x3167, Lifetime: 1048 secs
  IS neighbor: glacier.00 Metric: 10
  IP prefix: 10.255.70.103/32 Metric: 0 Internal Up
  IP prefix: 43.1.1.0/24 Metric: 10 Internal Up
  V6 prefix: abcd::10:255:70:103/128 Metric: 0 Internal Up

camaro.00-00 Sequence: 0x5, Checksum: 0x770e, Lifetime: 1082 secs
  IS neighbor: ranier.00 Metric: 10
  IS neighbor: glacier.02 Metric: 10
  IP prefix: 10.255.71.52/32 Metric: 0 Internal Up
  IP prefix: 23.1.1.0/24 Metric: 10 Internal Up
  IP prefix: 34.1.1.0/24 Metric: 10 Internal Up
  V6 prefix: abcd::10:255:71:52/128 Metric: 0 Internal Up

ranier.00-00 Sequence: 0x4, Checksum: 0xaa95, Lifetime: 1082 secs
  IS neighbor: camaro.00 Metric: 10
  IS neighbor: badlands.00 Metric: 10
  IP prefix: 10.255.71.241/32 Metric: 0 Internal Up
  IP prefix: 11.1.1.0/24 Metric: 10 Internal Up
  IP prefix: 23.1.1.0/24 Metric: 10 Internal Up
  V6 prefix: abcd::10:255:71:241/128 Metric: 0 Internal Up

glacier.00-00 Sequence: 0x4, Checksum: 0x206f, Lifetime: 1080 secs
  IS neighbor: kobuk.00 Metric: 10
  IS neighbor: glacier.02 Metric: 10
  IP prefix: 10.255.71.242/32 Metric: 0 Internal Up
  IP prefix: 34.1.1.0/24 Metric: 10 Internal Up
  IP prefix: 43.1.1.0/24 Metric: 10 Internal Up
  V6 prefix: abcd::10:255:71:242/128 Metric: 0 Internal Up

glacier.02-00 Sequence: 0x1, Checksum: 0xd141, Lifetime: 1080 secs
  IS neighbor: camaro.00 Metric: 0
  IS neighbor: glacier.00 Metric: 0

badlands.00-00 Sequence: 0x3, Checksum: 0x87a2, Lifetime: 1084 secs
  IS neighbor: ranier.00 Metric: 10
  IP prefix: 10.255.71.244/32 Metric: 0 Internal Up
  IP prefix: 11.1.1.0/24 Metric: 10 Internal Up
  V6 prefix: abcd::10:255:71:244/128 Metric: 0 Internal Up

IS-IS level 2 link-state database:

kobuk.00-00 Sequence: 0x6, Checksum: 0x8d6b, Lifetime: 1088 secs
  IS neighbor: glacier.00 Metric: 10
  IP prefix: 10.255.70.103/32 Metric: 0 Internal Up
  IP prefix: 10.255.71.52/32 Metric: 20 Internal Up
  IP prefix: 10.255.71.241/32 Metric: 30 Internal Up
  IP prefix: 10.255.71.242/32 Metric: 10 Internal Up
  IP prefix: 10.255.71.244/32 Metric: 40 Internal Up
  IP prefix: 11.1.1.0/24 Metric: 40 Internal Up
  IP prefix: 23.1.1.0/24 Metric: 30 Internal Up
  IP prefix: 34.1.1.0/24 Metric: 20 Internal Up
  IP prefix: 43.1.1.0/24 Metric: 10 Internal Up
  V6 prefix: abcd::10:255:70:103/128 Metric: 0 Internal Up

camaro.00-00 Sequence: 0x9, Checksum: 0x877b, Lifetime: 1092 secs
  IS neighbor: ranier.00 Metric: 10
  IS neighbor: glacier.02 Metric: 10

```

```

IP prefix: 10.255.70.103/32      Metric:      20 Internal Up
IP prefix: 10.255.71.52/32       Metric:       0 Internal Up
IP prefix: 10.255.71.241/32      Metric:      10 Internal Up
IP prefix: 10.255.71.242/32      Metric:      10 Internal Up
IP prefix: 10.255.71.244/32      Metric:      20 Internal Up
IP prefix: 11.1.1.0/24           Metric:      20 Internal Up
IP prefix: 23.1.1.0/24           Metric:      10 Internal Up
IP prefix: 34.1.1.0/24           Metric:      10 Internal Up
IP prefix: 43.1.1.0/24           Metric:      20 Internal Up
V6 prefix: abcd::10:255:71:52/128 Metric:       0 Internal Up

```

ranier.00-00 Sequence: 0x8, Checksum: 0x855d, Lifetime: 1094 secs

```

IS neighbor: camaro.00           Metric:      10
IS neighbor: badlands.00         Metric:      10
IP prefix: 10.255.70.103/32      Metric:      30 Internal Up
IP prefix: 10.255.71.52/32       Metric:      10 Internal Up
IP prefix: 10.255.71.241/32      Metric:       0 Internal Up
IP prefix: 10.255.71.242/32      Metric:      20 Internal Up
IP prefix: 10.255.71.244/32      Metric:      10 Internal Up
IP prefix: 11.1.1.0/24           Metric:      10 Internal Up
IP prefix: 23.1.1.0/24           Metric:      10 Internal Up
IP prefix: 34.1.1.0/24           Metric:      20 Internal Up
IP prefix: 43.1.1.0/24           Metric:      30 Internal Up
V6 prefix: abcd::10:255:71:241/128 Metric:       0 Internal Up

```

glacier.00-00 Sequence: 0x7, Checksum: 0xf892, Lifetime: 1089 secs

```

IS neighbor: kobuk.00            Metric:      10
IS neighbor: glacier.02          Metric:      10
IP prefix: 10.255.70.103/32      Metric:      10 Internal Up
IP prefix: 10.255.71.52/32       Metric:      10 Internal Up
IP prefix: 10.255.71.241/32      Metric:      20 Internal Up
IP prefix: 10.255.71.242/32      Metric:       0 Internal Up
IP prefix: 10.255.71.244/32      Metric:      30 Internal Up
IP prefix: 11.1.1.0/24           Metric:      30 Internal Up
IP prefix: 23.1.1.0/24           Metric:      20 Internal Up
IP prefix: 34.1.1.0/24           Metric:      10 Internal Up
IP prefix: 43.1.1.0/24           Metric:      10 Internal Up
V6 prefix: abcd::10:255:71:242/128 Metric:       0 Internal Up

```

glacier.02-00 Sequence: 0x1, Checksum: 0xd141, Lifetime: 1080 secs

```

IS neighbor: camaro.00           Metric:       0
IS neighbor: glacier.00          Metric:       0

```

badlands.00-00 Sequence: 0x6, Checksum: 0x562, Lifetime: 1096 secs

```

IS neighbor: ranier.00           Metric:      10
IP prefix: 10.255.70.103/32      Metric:      40 Internal Up
IP prefix: 10.255.71.52/32       Metric:      20 Internal Up
IP prefix: 10.255.71.241/32      Metric:      10 Internal Up
IP prefix: 10.255.71.242/32      Metric:      30 Internal Up
IP prefix: 10.255.71.244/32      Metric:       0 Internal Up
IP prefix: 11.1.1.0/24           Metric:      10 Internal Up
IP prefix: 23.1.1.0/24           Metric:      20 Internal Up
IP prefix: 34.1.1.0/24           Metric:      30 Internal Up
IP prefix: 43.1.1.0/24           Metric:      40 Internal Up
V6 prefix: abcd::10:255:71:244/128 Metric:       0 Internal Up

```

show isis database extensive user@host> **show isis database extensive isis2**
IS-IS level 1 link-state database:

IS-IS level 2 link-state database:

```

isis2.00-00 Sequence: 0x82, Checksum: 0x6cc3, Lifetime: 1126 secs
  IS neighbor:                isis1.00 Metric:      10
  IS neighbor:                isis3.00 Metric:      10
  IP prefix:                   10.255.245.202/32 Metric: 0 Internal
  IP prefix:                   192.168.36.0/29 Metric:  10 Internal
  IP prefix:                   192.168.36.16/30 Metric:  10 Internal
  IP prefix:                   192.168.36.24/30 Metric:  10 Internal

Header: LSP ID: isis2.00-00, Length: 234 bytes
  Allocated length: 234 bytes, Router ID: 10.255.245.202
  Remaining lifetime: 1126 secs, Level: 2, Interface: 4
  Estimated free bytes: 0, Actual free bytes: 0
  Aging timer expires in: 1126 secs
  Protocols: IP, IPv6

Packet: LSP ID: isis2.00-00, Length: 234 bytes, Lifetime : 1198 secs
  Checksum: 0x6cc3, Sequence: 0x82, Attributes: 0x3 <L1 L2>
  NLPID: 0x83, Fixed length: 27 bytes, Version: 1, Sysid length: 0 bytes
  Packet type: 20, Packet version: 1, Max area: 0

TLVs:
  Area address: 47.0005.80ff.f800.0000.0108.0001 (13)
  Speaks: IP
  Speaks: IPv6
  IP router id: 10.255.245.202
  IP address: 10.255.245.202
  Hostname: isis2
  IS neighbor: isis3.00, Internal, Metric: default 10
  IS neighbor: isis1.00, Internal, Metric: default 10
  IS neighbor: isis3.00, Metric: default 10
    IP address: 192.168.36.25
    Neighbor's IP address: 192.168.36.26
  IS neighbor: isis1.00, Metric: default 10
    IP address: 192.168.36.18
    Neighbor's IP address: 192.168.36.17
  IP prefix: 10.255.245.202/32, Internal, Metric: default 0
  IP prefix: 192.168.36.0/29, Internal, Metric: default 10
  IP prefix: 192.168.36.24/30, Internal, Metric: default 10
  IP prefix: 192.168.36.16/30, Internal, Metric: default 10
  IP prefix: 10.255.245.202/32 metric 0 up
    6 bytes of subtlvs
    Administrative tag 1: 1000
  IP prefix: 192.168.36.0/29 metric 10 up
  IP prefix: 192.168.36.24/30 metric 10 up
  IP prefix: 192.168.36.16/30 metric 10 up
No queued transmissions

```

```

show isis database extensive
extensive
(CLNS)
user@host> show isis database extensive
IS-IS level 1 link-state database:
isis2.00-00 Sequence: 0x1256, Checksum: 0x53da, Lifetime: 582 secs
  IS neighbor: pro1-a.02 Metric:      10
  ES neighbor: toothache Metric:      0
  ES neighbor: 1921.6800.4002 Metric:  10
  IP prefix: 192.168.37.64/29 Metric:  10 Internal Up

Header: LSP ID: toothache.00-00, Length: 140 bytes
  Allocated length: 284 bytes, Router ID: 0.0.0.0
  Remaining lifetime: 582 secs, Level: 1, Interface: 66
  Estimated free bytes: 144, Actual free bytes: 144
  Aging timer expires in: 582 secs
  Protocols: IP, CLNS

```

Packet: LSP ID: toothache.00-00, Length: 140 bytes, Lifetime : 1199 secs
Checksum: 0x53da, Sequence: 0x1256, Attributes: 0xb <L1 L2 Attached>
NLPID: 0x83, Fixed length: 27 bytes, Version: 1, Sysid length: 0 bytes
Packet type: 18, Packet version: 1, Max area: 0

TLVs:

Area address: 47.0005.80ff.f800.0000.0108.0001 (13)
Speaks: CLNP
Speaks: IP
Hostname: toothache
IP address: 192.168.37.69
IP extended prefix: 192.168.37.64/29 metric 10 up
IP prefix: 192.168.37.64/29, Internal, Metric: default 10, Up
IS neighbor: pro1-a.02, Internal, Metric: default 10
IS extended neighbor: pro1-a.02, Metric: default 10
ES neighbor TLV: Internal, Metric: default 0
ES: toothache
ES neighbor TLV: Internal, Metric: default 10
ES: 1921.6800.4002
No queued transmissions

show isis hostname

Syntax	show isis hostname <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show isis hostname
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Intermediate System-to-Intermediate System (IS-IS) hostname database information.
Options	none—Display IS-IS hostname database information. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show isis hostname on page 267
Output Fields	Table 76 on page 267 describes the output fields for the show isis hostname command. Output fields are listed in the approximate order in which they appear.

Table 76: show isis hostname Output Fields

Field Name	Field Description
System Id	System identifier mapped to the hostname.
Hostname	Hostname mapped to the system identifier.
Type	Type of mapping between system identifier and hostname. <ul style="list-style-type: none"> • Dynamic—Hostname mapping determined as described in RFC 2763, <i>Dynamic Hostname Exchange Mechanism for IS-IS</i>. • Static—Hostname mapping configured by user.

```

show isis hostname      user@host> show isis hostname
                          IS-IS hostname database:
                          System Id      Hostname
                          1921.6800.4201 isis1
                          1921.6800.4202 isis2
                          1921.6800.4203 isis3
                                          Type
                                          Dynamic
                                          Static
                                          Dynamic

```

show isis interface

Syntax	show isis interface <brief detail extensive> <interface-name> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show isis interface <brief detail extensive> <interface-name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display status information about Intermediate System-to-Intermediate System (IS-IS)-enabled interfaces.
Options	<p>none—Display standard information about all IS-IS-enabled interfaces.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>interface-name—(Optional) Display information about the specified interface only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show isis interface on page 270</p> <p>show isis interface brief on page 270</p> <p>show isis interface detail on page 270</p> <p>show isis interface extensive on page 270</p> <p>show isis interface extensive (with LDP) on page 271</p>
Output Fields	Table 77 on page 268 describes the output fields for the show isis interface command. Output fields are listed in the approximate order in which they appear.

Table 77: show isis interface Output Fields

Field Name	Field Description	Level of Output
<i>interface-name</i>	Name of the interface.	detail
Designated router	Routing device selected by other routers that is responsible for sending link-state advertisements that describe the network. Used only on broadcast networks.	detail
Index	Interface index assigned by the Junos kernel.	detail
State	Internal implementation information.	detail
Circuit id	Circuit identifier.	detail

Table 77: show isis interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Circuit type	Circuit type: <ul style="list-style-type: none"> • 1—Level 1 only • 2—Level 2 only • 3—Level 1 and Level 2 	detail
LSP interval	Interval between link-state PDUs sent from the interface.	detail
CSNP interval	Interval between complete sequence number PDUs sent from the interface.	detail extensive
Sysid	System identifier.	detail
Interface	Interface through which the adjacency is made.	none brief
L or Level	Level: <ul style="list-style-type: none"> • 1—Level 1 only • 2—Level 2 only • 3—Level 1 and Level 2 	All levels
CirID	Circuit identifier.	none brief
Level 1 DR	Level 1 designated intermediate system.	none brief
Level 2 DR	Level 2 designated intermediate system.	none brief
L1/L2 Metric	Interface's metric for Level 1 and Level 2. If there is no information, the metric is 0.	none brief
Adjacency advertisement: Advertise	This routing device has signaled not to advertise this interface to its neighbors in their label-switched paths (LSPs).	detail extensive
Adjacency advertisement: Suppress	This neighbor has signaled not to advertise this interface in the routing device's outbound LSPs.	detail extensive
Adjacencies	Number of adjacencies established on this interface.	detail
Priority	Priority value for this interface.	detail
Metric	Metric value for this interface.	detail
Hello(s) / Hello Interval	Interface's hello interval.	detail extensive
Hold(s) / Hold Time	Interface's hold time.	detail extensive

Table 77: show isis interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Designated Router	Router responsible for sending network link-state advertisements, which describe all the routers attached to the network.	detail
Hello padding	Type of hello padding: <ul style="list-style-type: none"> Adaptive—On point-to-point connections, the hello packets are padded from the initial detection of a new neighbor until the neighbor verifies the adjacency as Up in the adjacency state TLV. If the neighbor does not support the adjacency state TLV, then padding continues. On LAN connections, padding starts from the initial detection of a new neighbor until there is at least one active adjacency on the interface. Loose—(Default) The hello packet is padded from the initial detection of a new neighbor until the adjacency transitions to the Up state. Strict—Padding is performed on all interface types and for all adjacency states, and is continuous. 	extensive
LDP sync state	Current LDP synchronization state: in sync , in holddown , or not supported .	extensive
reason	Reason for being in the LDP sync state.	extensive
config holdtime	Configured value of the hold timer.	extensive
remaining	If the state is not in sync and the hold time is not infinity, then this field displays the number of seconds remaining.	extensive

```

show isis interface  user@host> show isis interface
                        IS-IS interface database:
                        Interface          L CirID Level 1 DR      Level 2 DR      L1/L2 Metric
                        at-2/3/0.0        3   0x1 Point to Point   Point to Point   10/10
                        lo0.0             0   0x1 Passive         Passive         0/0

```

show isis interface brief The output for the **show isis interface brief** command is identical to that for the **show isis interface** command. For sample output, see **show isis interface** on page 270.

```

show isis interface detail user@host> show isis interface detail
                        IS-IS interface database:
                        at-2/3/0.0
                        Index: 66, State: 0x6, Circuit id: 0x1, Circuit type: 3
                        LSP interval: 100 ms, CSNP interval: 5 s
                        Level Adjacencies Priority Metric Hello (s) Hold (s) Designated Router
                        1             1         64    10    9.000    27
                        2             1         64    10    9.000    27
                        lo0.0
                        Index: 64, State: 0x6, Circuit id: 0x1, Circuit type: 0
                        LSP interval: 100 ms, CSNP interval: disabled
                        Level Adjacencies Priority Metric Hello (s) Hold (s) Designated Router
                        1             0         64     0 Passive
                        2             0         64     0 Passive

```

```

show isis interface extensive user@host> show isis interface extensive

```

IS-IS interface database:

at-2/3/0.0

Index: 66, State: 0x6, Circuit id: 0x1, Circuit type: 3
 LSP interval: 100 ms, CSNP interval: 5 s, Loose Hello padding
 Level 1
 Adjacencies: 1, Priority: 64, Metric: 10
 Hello Interval: 9.000 s, Hold Time: 27 s

Level 2

Adjacencies: 1, Priority: 64, Metric: 10
 Hello Interval: 9.000 s, Hold Time: 27 s

lo0.0

Index: 64, State: 0x6, Circuit id: 0x1, Circuit type: 0
 LSP interval: 100 ms, CSNP interval: disabled, Loose Hello padding
 Level 1

Adjacencies: 0, Priority: 64, Metric: 0
 Passive

Level 2

Adjacencies: 0, Priority: 64, Metric: 0
 Passive

**show isis interface
 extensive (with LDP)**

user@host> show isis interface extensive

IS-IS interface database:

so-1/1/2.0

Index: 114, State: 0x6, Circuit id: 0x1, Circuit type: 2
 LSP interval: 100 ms, CSNP interval: 20 s, Loose Hello padding
 Adjacency advertisement: Advertise
 LDP sync state: in sync, for: 00:01:28, reason: LDP up during config
 config holdtime: 20 seconds

Level 2

Adjacencies: 1, Priority: 64, Metric: 11
 Hello Interval: 9.000 s, Hold Time: 27 s
 IPV4 MulticastMetric: 10
 IPV6 UnicastMetric: 10

show isis overview

Syntax	show isis overview <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show isis overview <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 8.5. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Intermediate System-to-Intermediate System (IS-IS) overview information.
Options	none—Display standard overview information about IS-IS for all routing instances. instance <i>instance-name</i> —(Optional) Display overview information for the specified routing instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show isis overview on page 273
Output Fields	Table 78 on page 272 lists the output fields for the show isis overview command. Output fields are listed in the approximate order in which they appear.

Table 78: show isis overview Output Fields

Field Name	Field Description
instance	The IS-IS routing instance.
Router ID	Router ID of the routing device.
Adjacency holddown	Adjacency holddown capability: enabled or disabled .
Maximum Areas	Maximum number of IS-IS areas advertised by the routing device.
LSP life time	Lifetime of the link-state PDU, in seconds.
Attached bit evaluation	Attached bit capability: enabled or disabled .
SPF delay	Delay before performing consecutive Shortest Path First calculations.
SPF holddown	Delay before performing additional Shortest Path First (SPF) calculations after the maximum number of consecutive SPF calculations is reached.

Table 78: show isis overview Output Fields (*continued*)

Field Name	Field Description
SPF rapid runs	Maximum number of Shortest Path First calculations that can be performed in succession before the holddown timer begins.
Overload bit at startup is set	Overload bit capability is enabled.
Overload high metrics	Overload high metrics capability: enabled or disabled .
Overload timeout	Time period after which overload is reset and the time that remains before the timer is set to expire.
Traffic engineering	Traffic engineering capability: enabled or disabled .
Restart	Graceful restart capability: enabled or disabled .
Restart duration	Time period for complete reacquisition of IS-IS neighbors.
Helper mode	Graceful restart helper capability: enabled or disabled .
Level	IS-IS level: <ul style="list-style-type: none"> • 1—Level 1 information • 2—Level 2 information
IPv4 is enabled	IP Protocol version 4 capability is enabled.
IPv6 is enabled	IP Protocol version 6 capability is enabled.
CLNS is enabled	OSI CLNP Protocol capability is enabled. (J Series routers only)
Internal route preference	Preference value of internal routes.
External route preference	Preference value of external routes.
Wide area metrics are enabled	Wide area metrics capability is enabled.
Narrow metrics is enabled	Narrow metrics capability is enabled.

show isis overview user@host> **show isis overview**

Sample Output Instance: master
Router ID: 192.168.1.220
Adjacency holddown: enabled
Maximum Areas: 3
LSP life time: 65535
Attached bit evaluation: enabled

```
SPF delay: 200 msec, SPF holddown: 5000 msec, SPF rapid runs: 3
Overload bit at startup is set
  Overload high metrics: disabled
  Overload timeout: 300 sec, expires in 295 seconds
IPv4 is enabled, IPv6 is enabled
Traffic engineering: enabled
Restart: Enabled
  Restart duration: 210 sec
  Helper mode: Enabled
Level 1
  Internal route preference: 15
  External route preference: 160
  Wide metrics are enabled, Narrow metrics are enabled
Level 2
  Internal route preference: 18
  External route preference: 165
  Wide metrics are enabled
```


show isis route

Syntax	<pre>show isis route <destination> <inet inet6> <instance instance-name> <logical-system (all logical-system-name)> <topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)></pre>
Syntax (EX Series Switch)	<pre>show isis route <destination> <inet inet6> <instance instance-name> <topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p>
Description	Display the routes in the Intermediate System-to-Intermediate System (IS-IS) routing table.
Options	<p>none—Display all routes in the IS-IS routing table for all supported address families for all routing instances.</p> <p><i>destination</i>—(Optional) Destination address for the route.</p> <p>inet inet6—(Optional) Display inet (IPv4) or inet6 (IPv6) routes, respectively.</p> <p>instance <i>instance-name</i>—(Optional) Display routes for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)—(Optional) Display routes for the specified topology only, or use unicast to display information, if available, for both IPv4 and IPv6 unicast topologies.</p>
Required Privilege Level	view
List of Sample Output	<p>show isis route logical-system on page 276</p> <p>show isis route (CLNS) on page 277</p>
Output Fields	Table 79 on page 276 describes the output fields for the show isis route command. Output fields are listed in the approximate order in which they appear.

Table 79: show isis route Output Fields

Field Name	Field Description
Current version	Number of the current version of the IS-IS routing table.
L1	Version of Level 1 SPF that was run.
L2	Version of Level 2 SPF that was run.
Prefix	Destination of the route.
L	IS-IS level: <ul style="list-style-type: none"> • 1—Level 1 only • 2—Level 2 only • 3—Level 1 and Level 2
Version	Version of SPF that generated the route.
Metric	Metric value associated with the route.
Type	Metric type: int (internal) or ext (external).
Interface	Interface to the next hop.
Via	System identifier of the next hop, displayed as a name if possible.
ISO Routes	ISO routing table entries.
snpa	MAC address.

show isis route
logical-system

```

user@host> show isis route logical-system ls1
IS-IS routing table           Current version: L1: 8 L2: 11
Prefix      L Version Metric Type Interface  Via
10.9.7.0/30  2      11      20 int  gr-0/2/0.0  h
10.9.201.1/32  2      11      60 int  gr-0/2/0.0  h
IPv6 Unicast IS-IS routing table           Current version: L1: 9 L2: 11
Prefix      L Version Metric Type Interface  Via
8009:3::a09:3200/126 2      11      20 int  gr-0/2/0.0  h

```

```

show isis route user@host> show isis route
(CLNS)           IS-IS routing table           Current version: L1: 10 L2: 8
IPv4/IPv6 Routes
Prefix           L Version   Metric Type Interface   Via
0.0.0.0/0        1      10      10 int fe-0/0/1.0   ISIS.0
ISO Routes
Prefix L   Version   Metric Type Interface   Via   snpa
0/0
      1      10      10 int fe-0/0/1.0   isis.0 0:12:0:34:0:56
47.0005.80ff.f800.0000.0108.0001/104
      1      10       0 int
47.0005.80ff.f800.0000.0108.0001.1921.6800.4001/152
      1      10      10 int fe-0/0/1.0 isis.0 0:12:0:34:0:56
47.0005.80ff.f800.0000.0108.0001.1921.6800.4002/152
      1      10      20 int fe-0/0/1.0 isis.0 0:12:0:34:0:56
47.0005.80ff.f800.0000.0108.0002/104
      1      10       0 int
47.0005.80ff.f800.0000.0108.0002.1921.6800.4001/152
      1      10      10 int fe-0/0/1.0 isis.0 0:12:0:34:0:56

```

show isis spf

Syntax	show isis spf (brief log results) <instance <i>instance-name</i> > <level (1 2)> <logical-system (all <i>logical-system-name</i>)> <topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)>
Syntax (EX Series Switch)	show isis spf (brief log results) <instance <i>instance-name</i> > <level (1 2)> <topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Intermediate System-to-Intermediate System (IS-IS) shortest-path-first (SPF) calculations.
Options	<p>brief—Display an overview of SPF calculations.</p> <p>log—Display the log of SPF calculations.</p> <p>results—Display the results of SPF calculations.</p> <p>instance <i>instance instance-name</i>—(Optional) Display SPF calculations for the specified routing instance.</p> <p>level (1 2)—(Optional) Display SPF calculations for the specified IS-IS level.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>topology (ipv4-multicast ipv6-multicast ipv6-unicast unicast)—(Optional) Display SPF calculations for the specified topology only.</p>
Required Privilege Level	view
List of Sample Output	<p>show isis spf brief on page 279</p> <p>show isis spf log on page 280</p> <p>show isis spf results on page 281</p> <p>show isis spf results (CLNS) on page 282</p>
Output Fields	Table 80 on page 278 describes the output fields for the show isis spf command. Output fields are listed in the approximate order in which they appear.

Table 80: show isis spf Output Fields

Field Name	Field Description
Node	System ID of a node.

Table 80: show isis spf Output Fields (*continued*)

Field Name	Field Description
Metric	Metric to the node.
Interface	Interface of the next hop.
Via	System ID of the next hop.
SNPA	Subnetwork point of attachment (MAC address of the next hop).
Start time	(log option only) Time that the SPF computation started.
Elapsed (secs)	(log option only) Length of time, in seconds, required to complete the SPF computation.
Count	(log option only) Number of times the SPF was triggered.
Reason	(log option only) Reason that the SPF computation was completed.

```

show isis spf brief user@host> show isis spf brief logical-system ls1
IS-IS level 1 SPF results:
Node      Metric  Interface  Via      SNPA
scat.00   10       ge-1/1/0.0  scat     0:90:69:a6:48:9d
fix.02    10
fix.00    0
3 nodes

IS-IS level 2 SPF results:
Node      Metric  Interface  Via      SNPA
skag.00   20       gr-0/2/0.0  h
skag.02   20       gr-0/2/0.0  h
h.00      10       gr-0/2/0.0  h
fix.00    0
4 nodes

IPv6 Unicast IS-IS level 1 SPF results:
Node      Metric  Interface  Via      SNPA
scat.00   10       ge-1/1/0.0  scat     0:90:69:a6:48:9d
          10       ge-1/1/0.0  scat     0:90:69:a6:48:9d
fix.02    10
fix.00    0
3 nodes

IPv6 Unicast IS-IS level 2 SPF results:
Node      Metric  Interface  Via      SNPA
skag.00   20       gr-0/2/0.0  h
          20       gr-0/2/0.0  h
skag.02   20       gr-0/2/0.0  h
          20       gr-0/2/0.0  h
h.00      10       gr-0/2/0.0  h
          10       gr-0/2/0.0  h
fix.00    0
4 nodes

```

Multicast IS-IS level 1 SPF results:

Node	Metric	Interface	Via	SNPA
scat.00	10	ge-1/1/0.0	scat	0:90:69:a6:48:9d
fix.02	10			
fix.00	0			

3 nodes

Multicast IS-IS level 2 SPF results:

Node	Metric	Interface	Via	SNPA
skag.00	20	gr-0/2/0.0	h	
skag.02	20	gr-0/2/0.0	h	
h.00	10	gr-0/2/0.0	h	
fix.00	0			

4 nodes

show isis spf log user@host> show isis spf log logical-system lsl

IS-IS level 1 SPF log:

Start time	Elapsed (secs)	Count	Reason
Fri Oct 31 12:41:18	0.000069	1	Reconfig
Fri Oct 31 12:41:18	0.000107	3	Updated LSP fix.00-00
Fri Oct 31 12:41:18	0.000050	3	Address change on so-1/2/2.0
Fri Oct 31 12:41:23	0.000033	1	Updated LSP fix.00-00
Fri Oct 31 12:41:28	0.000178	5	New adjacency scat on ge-1/1/0.0
Fri Oct 31 12:41:59	0.000060	1	Updated LSP fix.00-00
Fri Oct 31 12:42:30	0.000161	2	Multi area attachment change
Fri Oct 31 12:56:58	0.000198	1	Periodic SPF
Fri Oct 31 13:10:29	0.000209	1	Periodic SPF

IS-IS level 2 SPF log:

Start time	Elapsed (secs)	Count	Reason
Fri Oct 31 12:41:18	0.000035	1	Reconfig
Fri Oct 31 12:41:18	0.000047	2	Updated LSP fix.00-00
Fri Oct 31 12:41:18	0.000043	5	Address change on gr-0/2/0.0
Fri Oct 31 12:41:23	0.000022	1	Updated LSP fix.00-00
Fri Oct 31 12:41:59	0.000144	3	New adjacency h on gr-0/2/0.0
Fri Oct 31 12:42:30	0.000257	3	New LSP skag.00-00
Fri Oct 31 12:54:37	0.000195	1	Periodic SPF
Fri Oct 31 12:55:50	0.000178	1	Updated LSP fix.00-00
Fri Oct 31 12:55:55	0.000174	1	Updated LSP h.00-00
Fri Oct 31 12:55:58	0.000176	1	Updated LSP skag.00-00
Fri Oct 31 13:08:14	0.000198	1	Periodic SPF

IPv6 Unicast IS-IS level 1 SPF log:

Start time	Elapsed (secs)	Count	Reason
Fri Oct 31 12:41:18	0.000028	1	Reconfig
Fri Oct 31 12:41:18	0.000043	3	Updated LSP fix.00-00
Fri Oct 31 12:41:18	0.000112	4	Updated LSP fix.00-00
Fri Oct 31 12:41:23	0.000059	1	Updated LSP fix.00-00
Fri Oct 31 12:41:25	0.000041	1	Updated LSP fix.00-00
Fri Oct 31 12:41:28	0.000103	5	New adjacency scat on ge-1/1/0.0
Fri Oct 31 12:41:59	0.000040	1	Updated LSP fix.00-00
Fri Oct 31 12:42:30	0.000118	2	Multi area attachment change
Fri Oct 31 12:56:08	0.000289	1	Periodic SPF
Fri Oct 31 13:11:07	0.000214	1	Periodic SPF

IPv6 Unicast IS-IS level 2 SPF log:

Start time	Elapsed (secs)	Count	Reason
Fri Oct 31 12:41:18	0.000027	1	Reconfig
Fri Oct 31 12:41:18	0.000039	2	Updated LSP fix.00-00
Fri Oct 31 12:41:18	0.000049	6	Updated LSP fix.00-00
Fri Oct 31 12:41:23	0.000025	1	Updated LSP fix.00-00

```

Fri Oct 31 12:41:25      0.000023      1 Updated LSP fix.00-00
Fri Oct 31 12:41:59      0.000087      3 New adjacency h on gr-0/2/0.0
Fri Oct 31 12:42:30      0.000123      3 New LSP skag.00-00
Fri Oct 31 12:55:50      0.000121      1 Updated LSP fix.00-00
Fri Oct 31 12:55:55      0.000121      1 Updated LSP h.00-00
Fri Oct 31 12:55:58      0.000121      1 Updated LSP skag.00-00
Fri Oct 31 13:09:46      0.000201      1 Periodic SPF
...

```

show isis spf results

```
user@host> show isis spf results logical-system ls1
```

```
IS-IS level 1 SPF results:
```

Node	Metric	Interface	Via	SNPA
scat.00	10	ge-1/1/0.0	scat	0:90:69:a6:48:9d
	20	10.9.1.0/30		
fix.02	10			
fix.00	0			
	10	10.9.1.0/30		
	10	10.9.5.0/30		
	10	10.9.6.0/30		
	20	10.9.7.0/30		
	60	10.9.201.1/32		
3 nodes				

```
IS-IS level 2 SPF results:
```

Node	Metric	Interface	Via	SNPA
skag.00	20	gr-0/2/0.0	h	
	30	10.9.7.0/30		
skag.02	20	gr-0/2/0.0	h	
h.00	10	gr-0/2/0.0	h	
	20	10.9.6.0/30		
	20	10.9.7.0/30		
	60	10.9.201.1/32		
fix.00	0			
	10	10.9.1.0/30		
	10	10.9.5.0/30		
	10	10.9.6.0/30		
4 nodes				

```
IPv6 Unicast IS-IS level 1 SPF results:
```

Node	Metric	Interface	Via	SNPA
scat.00	10	ge-1/1/0.0	scat	0:90:69:a6:48:9d
	20	ge-1/1/0.0	scat	0:90:69:a6:48:9d
	20	8009:1::a09:1400/126		
fix.02	10			
fix.00	0			
	10	8009:1::a09:1400/126		
	10	8009:2::a09:1e00/126		
	20	8009:3::a09:3200/126		
	10	8009:4::a09:2800/126		
3 nodes				

```
IPv6 Unicast IS-IS level 2 SPF results:
```

Node	Metric	Interface	Via	SNPA
skag.00	20	gr-0/2/0.0	h	
	30	gr-0/2/0.0	h	
	30	8009:3::a09:3200/126		
skag.02	20	gr-0/2/0.0	h	
	20	gr-0/2/0.0	h	
h.00	10	gr-0/2/0.0	h	
	20	gr-0/2/0.0	h	
	20	8009:3::a09:3200/126		

```

fix.00          20      8009:4::a09:2800/126
                0
                10      8009:1::a09:1400/126
                10      8009:2::a09:1e00/126
                10      8009:4::a09:2800/126
4 nodes

Multicast IS-IS level 1 SPF results:
Node           Metric   Interface      Via           SNPA
scat.00        10      ge-1/1/0.0    scat         0:90:69:a6:48:9d
fix.02         10
fix.00         0
3 nodes

Multicast IS-IS level 2 SPF results:
Node           Metric   Interface      Via           SNPA
skag.00        20      gr-0/2/0.0    h
skag.02        20      gr-0/2/0.0    h
h.00           10      gr-0/2/0.0    h
fix.00         0
4 nodes
...

```

show isis spf results (CLNS)

```

user@host> show isis spf results
IS-IS level 1 SPF results:
Node           Metric   Interface      Via           SNPA
skag.00 10      fe-0/0/1.0     toothache     0:12:0:34:0:56
                fe-0/0/1.0     toothache     0:12:0:34:0:56
                20      192.168.37.64/29
                10      1921.6800.4001
                20      1921.6800.4002
pro1-a.02      10
pro1-a.00      0
                0      10.255.245.1/32
                10      192.168.37.64/29
                0      1921.6800.4211
3 nodes

IS-IS level 2 SPF results:
Node           Metric   Interface      Via           SNPA
skag.00 10      fe-0/0/1.0     toothache     0:12:0:34:0:56
                fe-0/0/1.0     toothache     0:12:0:34:0:56
                20      10.255.245.1/32
                20      192.168.37.64/29
                20      47.0005.80ff.f800.0000.0109.0010/104
pro1-a.02      10
pro1-a.00      0
                0      10.255.245.1/32
                10      192.168.37.64/29
3 nodes

```


show isis statistics

Syntax	show isis statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show isis statistics <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display statistics about Intermediate System-to-Intermediate System (IS-IS) traffic.
Options	none—Display IS-IS traffic statistics for all routing instances. instance <i>instance-name</i> —(Optional) Display statistics for the specified routing instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear isis statistics on page 245
List of Sample Output	show isis statistics on page 284
Output Fields	Table 81 on page 283 describes the output fields for the show isis statistics command. Output fields are listed in the approximate order in which they appear.

Table 81: show isis statistics Output Fields

Field Name	Field Description
PDU type	<p>Protocol data unit type:</p> <ul style="list-style-type: none"> CSNP—Complete sequence number PDUs contain a complete list of all link-state PDUs in the IS-IS database. CSNPs are sent periodically on all links, and the receiving systems use the information in the CSNP to update and synchronize their link-state PDU databases. The designated router multicasts CSNPs on broadcast links in place of sending explicit acknowledgments for each link-state PDU. IIH—IS-IS hello packets are broadcast to discover the identity of neighboring IS-IS systems and to determine whether the neighbors are Level 1 or Level 2 intermediate systems. LSP—Link-state PDUs contain information about the state of adjacencies to neighboring IS-IS systems. Link-state PDUs are flooded periodically throughout an area. PSNP—Partial sequence number PDUs are sent multicast by a receiver when it detects that it is missing a link-state PDU; that is, when its link-state PDU database is out of date. The receiver sends a PSNP to the system that transmitted the CSNP, effectively requesting that the missing link-state PDU be transmitted. That routing device, in turn, forwards the missing link-state PDU to the requesting routing device. Unknown—The PDU type is unknown.

Table 81: show isis statistics Output Fields (*continued*)

Field Name	Field Description
Received	Number of PDUs received since IS-IS started or since the statistics were set to zero.
Processed	Number of PDUs received less the number dropped.
Drops	Number of PDUs dropped.
Sent	Number of PDUs transmitted since IS-IS started or since the statistics were set to zero.
Rexmit	Number of PDUs retransmitted since IS-IS started or since the statistics were set to zero.
Total packets received/sent	Total number of PDUs received and transmitted since IS-IS started or since the statistics were set to zero.
SNP queue length	Number of CSPN and PSNP packets currently waiting in the queue for processing. This value is almost always 0.
LSP queue length	Number of link-state PDUs waiting in the queue for processing. This value is almost always 0.
SPF runs	Number of shortest-path-first (SPF) calculations that have been performed. If this number is incrementing rapidly, it indicates that the network is unstable.
Fragments rebuilt	Number of link-state link-state PDU fragments that the local system has computed.
LSP regenerations	Number of link-state PDUs that have been regenerated. A link state PDU is regenerated when it is nearing the end of its lifetime and it has not changed.
Purges initiated	Number of purges that the system initiated. A purge is initiated if the software decides that a link-state PDU must be removed from the network.

show isis statistics

```
user@host> show isis statistics
IS-IS statistics for merino:
```

PDU type	Received	Processed	Drops	Sent	Rexmit
LSP	12227	12227	0	8184	683
IIH	113808	113808	0	115817	0
CSPN	198868	198868	0	198934	0
PSNP	6985	6979	6	8274	0
Unknown	0	0	0	0	0
Totals	331888	331882	6	331209	683

```
Total packets received: 331888 Sent: 331892
```

```
SNP queue length:      0 Drops:      0
LSP queue length:      0 Drops:      0
```

```
SPF runs:              1014
Fragments rebuilt:     1038
LSP regenerations:     425
Purges initiated:      0
```

CHAPTER 8

LLDP Operational Mode Commands

Table 82 on page 285 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Link Layer Discovery Protocol (LLDP) protocol. Commands are listed in alphabetical order.

Table 82: LLDP Operational Mode Commands

Task	Command
Clear LLDP neighbor information.	clear lldp neighbor
Clear LLDP statistics.	clear lldp statistics
Display basic LLDP information.	show lldp
Display LLDP local information.	show lldp local-information
Display LLDP neighbor information.	show lldp neighbors
Display LLDP remote global statistics.	show lldp remote-global-statistics
Display LLDP statistics.	show lldp statistics

clear lldp neighbor

Syntax	<code>clear lldp neighbor</code> <code><interface <i>interface-name</i>></code>
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, clear information regarding all Link Layer Discovery Protocol (LLDP) neighbors or LLDP neighbors of the specified interface.
Options	<code>interface <i>interface-name</i></code> —(Optional) Clear the LLDP neighbors on the specified interface.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• clear lldp statistics on page 287
List of Sample Output	clear lldp statistics on page 286
Output Fields	When you enter this command, you are provided no feedback on the status of your request. You can enter the show lldp neighbors command before and after clearing the LLDP neighbors to verify the clear operation.
clear lldp statistics	<code>user@host> clear lldp statistics</code> <code>user@host> clear lldp statistics interface ge-0/2/0</code>

clear lldp statistics

Syntax	<code>clear lldpp neighbor</code> <code><interface <i>interface-name</i>></code>
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, clear all Link Layer Discovery Protocols (LLDP) statistics or LLDP statistics associated with the specified interface.
Options	<code>interface <i>interface-name</i></code> —(Optional) Clear LLDP statistics on the specified interface.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• clear lldp neighbor on page 286
List of Sample Output	clear lldp neighbor on page 287
Output Fields	When you enter this command, you are provided no feedback on the status of your request. You can enter the show lldp statistics command before and after clearing the LLDP statistics to verify the clear operation.
clear lldp neighbor	<pre>user@host> clear lldp neighbors user@host> clear lldp neighbors interface ge-0/2/2</pre>

show lldp

Syntax	show lldp <detail>
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, display information about the Link Layer Discovery Protocol (LLDP).
Options	detail—(Optional) Display the detailed output level.
Required Privilege Level	view
List of Sample Output	show lldp on page 289 show lldp detail on page 289
Output Fields	Table 83 on page 288 describes the output fields for the show lldp command. Output fields are listed in the approximate order in which they appear.

Table 83: show lldp Output Fields

Field Name	Field Description
LLDP	Status of LLDP: Enabled or Disabled .
Advertisement interval	Value of the advertisement interval parameter.
Transmit delay	Value of the transmit delay parameter.
Hold timer	Value of the hold timer parameter.
Notification interval	Value of the notification interval parameter.
Config Trap Interval	Value of the configuration trap parameter.
Connection Hold timer	Value of the connection hold timer parameter.
Interface	List of LLDP interfaces, showing status (Enabled or Disabled) and Neighbor count (detail only).
LLDP basic TLVs supported	List of basic LLDP TLVs supported by this device (detail only).
LLDP 802 TLVs supported	List of IEEE 802.1 LLDP TLVs supported by this device (detail only).

```

show lldp   user@host> show lldp
LLDP          : Enabled
Advertisement interval : 30 Second(s)
Transmit delay   : 2 Second(s)
Hold timer      : 4 Second(s)
Notification interval : 30 Second(s)
Config Trap Interval : 300 Second(s)
Connection Hold timer : 60 Second(s)

Interface      LLDP
ge-0/0/0       Enabled
ge-0/0/1       Enabled
ge-0/0/4       Enabled

```

```

show lldp detail user@host> show lldp detail
LLDP          : Enabled
Advertisement interval : 30 Second(s)
Transmit delay   : 2 Second(s)
Hold timer      : 4 Second(s)
Notification interval : 30 Second(s)
Config Trap Interval : 300 Second(s)
Connection Hold timer : 60 Second(s)

Interface      LLDP      Neighbor count
ge-0/0/0       Enabled    0
ge-0/0/1       Enabled    0
ge-0/0/4       Enabled    0

```

LLDP basic TLVs supported:

Chassis identifier, Port identifier, Port description, System name, System description, System capabilities, Management address.

LLDP 802 TLVs supported:

Link aggregation, Maximum frame size, MAC/PHY Configuration/Status, Port VLAN ID, Port VLAN name.

show lldp local-information

Syntax	show lldp local-information
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, display local Link Layer Discovery Protocol (LLDP) information.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show lldp local-information on page 291
Output Fields	Table 84 on page 290 describes the output fields for the show lldp local-information command. Output fields are listed in the approximate order in which they appear.

Table 84: show lldp local-information Output Fields

Field Name	Field Description
LLDP Local Information details	Information that follows pertains to the local system.
Chassis ID	List of chassis identifiers for local information.
System name	Local system name reported by LLDP.
System descr	Local system description reported by LLDP.
System Capabilities	Capabilities (such as Bridge or Router) that are Supported or Enabled by system on the interface.
Management Information	Listed by Interface Name , Address Subtype (such as ipv4), Address (such as 192.168.168.229), Interface Number , and Interface Numbering Subtype .
Interface Name	List of local interfaces.
Interface ID	List of local interface identifiers.
Interface Description	List of local interface descriptions.
Status	List of interface conditions: UP or DOWN .


```
show lldp local-information user@host> show lldp local-information
LLDP Local Information details

Chassis ID   : 00:90:69:0a:77:c0
System name  : sw-mx-u
System descr : Juniper Networks, Inc. MX 960, Version 9.4I0.1, Build date
                                   2008-09-04 14:51:50 UTC

System Capabilities
  Supported   : Bridge Router
  Enabled     : Bridge Router

Management Information
  Interface Name : fxp0
  Address Subtype : IPv4(1)
  Address        : 192.168.168.229
  Interface Number : 1
  Interface Numbering Subtype : ifIndex(2)

Interface Name      Interface ID      Interface Description      Status
ge-0/1/0            18              Avaya Port                UP
ge-0/1/1            27              -                          DOWN
ge-0/1/2            13              Port for Hub              UP
```

show lldp neighbors

Syntax	show lldp neighbors <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, display information about LLDP neighbors.
Options	interface <i>interface-name</i> —(Optional) Display the neighbor information about a particular physical interface.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear lldp neighbor on page 286
List of Sample Output	show lldp neighbors on page 294 show lldp neighbors interface ge-0/0/4 on page 294
Output Fields	Table 85 on page 292 describes the output fields for the show lldp neighbors command. Output fields are listed in the approximate order in which they appear.

Table 85: show lldp neighbors Output Fields

Field Name	Field Description
LLDP Remote Devices Information	Information about remote devices.
LocalInterface	List of local interfaces for which neighbor information is available.
ChassisId	List of chassis identifiers for neighbors.
PortInfo	List of port information gathered from neighbors. This could be the port identifier or port description.
SysName	List of system names gathered from neighbors.
LLDP Neighbor Information	Information about both local and neighbor systems on the interface (appears when the interface option is used).
Local Information	Information about local systems on the interface (appears when the interface option is used).
Neighbor Information	Information about both local and neighbor system on the interface (appears when the interface option is used).
Index	Local interface index (appears when the interface option is used).

Table 85: show lldp neighbors Output Fields (*continued*)

Field Name	Field Description
Time Mark	Date and timestamp of information (appears when the interface option is used).
Time To Live	Number of seconds for which this information is valid (appears when the interface option is used).
Local Interface	Name of the local physical interface (appears when the interface option is used).
Local Port ID	Local port identifier (appears when the interface option is used).
Neighbor Information	Information about neighbor systems on the interface (appears when the interface option is used).
Chassis type	Type of chassis identifier supplied, such as MAC address (appears when the interface option is used).
Chassis ID	Chassis identifier of type listed (appears when the interface option is used).
Port type	Type of port identifier supplied, such as local (appears when the interface option is used).
Port ID	Port identifier of type listed (appears when the interface option is used).
Port description	Port description (appears when the interface option is used).
System name	Name supplied by the system on the interface (appears when the interface option is used).
System Description	Description supplied by the system on the interface (appears when the interface option is used).
System Capabilities	Capabilities (such as bridge or router) that are Supported or Enabled by the system on the interface (appears when the interface option is used).
Management address	Details of the management address: Address Type (such as ipv4), Address (such as 10.204.34.35), Interface Number , Interface Subtype , and Organization Identifier (OID) (appears when the interface option is used).
Organization Info	One or more entries listing remote information by Organizationally Unique Identifier (OUI), Subtype , Index , and Info (appears when the interface option is used).

show lldp neighbors user@host> show lldp neighbors
LLDP Remote Devices Information

LocalInterface	ChassisId	PortInfo	SysName
ge-0/0/0	10.209.192.12	00 19 bb 20 de 80	AVA4C357D
ge-0/0/1	10.209.192.12	00 19 bb 20 de 80	AVA4C357D
ge-0/0/1	10.209.192.13	00 19 bb 20 de 81	AVA4C357E
ge-0/0/3	00 19 bb 20 de 79	5	apg-hp1
ge-0/0/3	00 19 bb 20 de 80	3	apg-hp1
ge-0/0/4	00 19 bb 20 de 79	5	apg-hp1
ge-0/0/4	00 19 bb 20 de 80	3	apg-hp1
ge-0/0/5	00 19 bb 20 de 81	ge-0/0/3	MX480-1
ge-0/0/6	00 19 bb 20 de 82	ge-0/0/4	MX960-2

show lldp neighbors interface ge-0/0/4 user@host> show lldp neighbors interface ge-0/0/4
interface ge-0/0/4 LLDP Neighbor Information:

Local Information:
Index 6 Time Mark Wed Jun 20 07:34:11 2007 Time To Live 120 seconds
Local Interface : ge-0/0/4
Local Port ID : 4

Neighbor Information:
Chassis type : Mac address
Chassis ID : 00 19 bb 20 de 80
Port type : local
Port ID : 3
Port description : 3
System name : apg-hp1

System Description : ProCurve J9049A Switch 2900-24G, revision
T.11.X1, ROM K....

System Capabilities
Supported : bridge, router
Enabled : bridge

Management address
Address Type : ipv4
Address : 10.204.34.35
Interface Number : 1
Interface Subtype : ifIndex(2)
OID : 1.3.6.1.2.1.31.1.1.1.1.1

Organization Info
OUI : 0.18.15
Subtype : 1
Index : 1
Info : 00A0000000

Organization Info
OUI : 0.18.15
Subtype : 3
Index : 2
Info : 0100000000

Organization Info
OUI : 0.18.15
Subtype : 4

Index : 3
Info : 05EA

show lldp remote-global-statistics

Syntax	show lldp remote-global-statistics
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, display remote Link Layer Discovery Protocol (LLDP) global statistics.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show lldp remote-global-statistics on page 297
Output Fields	Table 86 on page 296 describes the output fields for the show lldp remote-global-statistics command. Output fields are listed in the approximate order in which they appear.

Table 86: show lldp remote-global-statistics Output Fields

Field Name	Field Description
LLDP Remote Database Table Counters	Information about remote database table counters.
LastchangeTime	Time elapsed between LLDP agent startup and the last change to the remote database table information.
Inserts	Number of insertions made in the remote database table.
Deletes	Number of deletions made in the remote database table.
Drops	Number of LLDP frames dropped from the remote database table because of errors.
Ageouts	Number of remote database table entries that have aged out of the table.

```
show lldp remote-global-statistics
user@host> show lldp remote-global-statistics
LLDP Remote Database Table Counters
LastchangeTime      Inserts    Deletes    Drops    Ageouts
00:00:76 (76 sec)   192        0          0        0
```

show lldp statistics

Syntax	show lldp statistics <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 9.6.
Description	On MX Series routers, display information about Link Layer Discovery Protocol (LLDP) statistics.
Options	interface <i>interface-name</i> —(Optional) Display the statistics about a particular physical interface.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear lldp statistics on page 287
List of Sample Output	show lldp statistics on page 299 show lldp statistics interface ge-0/1/1 on page 299
Output Fields	Table 87 on page 298 describes the output fields for the show lldp statistics command. Output fields are listed in the approximate order in which they appear.

Table 87: show lldp statistics Output Fields

Field Name	Field Description
Interface	Interface name.
Received	Number of LLDP frames received on this interface.
Transmitted	Number of LLDP frames sent on this interface.
Unknown-TLVs	Number of LLDP frames with unsupported content received on this interface.
With-Errors	Number of LLDP frames with errors received on this interface.
Discarded	Number of LLDP frames received on this interface that were discarded because of problems.


```

show lldp statistics user@host> show lldp statistics
Interface Received Transmitted Unknown-TLVs With-Errors Discarded
-----
ge-0/1/1 544 540 0 0 0
ge-0/1/2 540 500 0 0 0
ge-0/1/3 544 540 0 0 0
ge-0/1/4 544 540 0 0 0
ge-0/1/5 544 540 0 0 0
ge-0/1/6 544 540 0 0 0
ge-0/1/7 0 0 0 0 0

```

```

show lldp statistics user@host> show lldp statistics interface ge-0/1/1
interface ge-0/1/1 Interface Received Transmitted Unknown-TLVs With-Errors Discarded
-----
ge-0/1/1 544 540 0 0 0

```


CHAPTER 9

MVRP Operational Mode Commands

Table 88 on page 301 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Multiple VLAN Registration Protocol (MVRP). Commands are listed in alphabetical order.

Table 88: MVRP Operational Mode Commands

Task	Command
Display Multiple VLAN Registration Protocol (MVRP) configuration information.	show mvrp
Display Multiple VLAN Registration Protocol (MVRP) applicant state information.	show mvrp applicant-state
Display all Virtual LANs (VLANs) that have been created dynamically using Multiple VLAN Registration Protocol (MVRP) on the router.	show mvrp dynamic-vlan-memberships
Display Multiple VLAN Registration Protocol (MVRP) interface-specific information.	show mvrp interface
Display Multiple VLAN Registration Protocol (MVRP) registration state information.	show mvrp registration-state
Display Multiple VLAN Registration Protocol (MVRP) statistics in the form of Multiple Registration Protocol data unit (MRPDU) messages.	show mvrp statistics

show mvrp

Syntax	show mvrp
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display Multiple VLAN Registration Protocol (MVRP) configuration information.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show mvrp applicant-state on page 304 • show mvrp dynamic-vlan-memberships on page 306 • show mvrp interface on page 307 • show mvrp registration-state on page 308 • show mvrp statistics on page 310
List of Sample Output	show mvrp on page 302
Output Fields	Table 89 on page 302 lists the output fields for the show mvrp command. Output fields are listed in the approximate order in which they appear.

Table 89: show mvrp Output Fields

Field Name	Field Description
MVRP dynamic VLAN creation	Displays whether global MVRP dynamic Virtual LAN (VLAN) creation is Enabled or Disabled .
MVRP BPDU MAC address	Displays the multicast media access control (MAC) address for MVRP. If configured, the provider MVRP multicast MAC address is used; otherwise, the customer MVRP multicast MAC address is used.
MVRP timers (ms)	Displays MVRP timer information: <ul style="list-style-type: none"> • Interface—The interface on which MVRP is configured. • Join—The maximum number of milliseconds the interfaces must wait before sending VLAN advertisements. • Leave—The number of milliseconds an interface must wait after receiving a Leave message to remove the interface from the VLAN specified in the message. • LeaveAll—The interval at which LeaveAll messages are sent on interfaces. LeaveAll messages maintain current MVRP VLAN membership information in the network.

```

show mvrp  user@host> show mvrp
                MVRP configuration for routing instance 'default-switch'
                MVRP dynamic VLAN creation : Enabled
                MVRP BPDU MAC address      : Customer bridge group (01-80-C2-00-00-21)
                MVRP timers (ms)
                  Interface      Join    Leave  LeaveAll

```

ge-11/2/8	200	800	10000
ge-11/0/9	200	800	10000
ge-11/3/0	200	800	10000

show mvrp applicant-state

Syntax	show mvrp applicant-state
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display Multiple VLAN Registration Protocol (MVRP) applicant state information.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show mvrp on page 302 • show mvrp interface on page 307 • show mvrp registration-state on page 308 • show mvrp statistics on page 310
List of Sample Output	show mvrp applicant-state on page 304
Output Fields	Table 90 on page 304 lists the output fields for the show mvrp applicant-state command. Output fields are listed in the approximate order in which they appear.

Table 90: show mvrp applicant-state Output Fields

Field Name	Field Description
VLAN Id	Displays the Virtual LAN (VLAN) ID number.
Interface	Displays the interface number associated with the VLAN ID.
State	Displays one of the following MVRP registrar states: <ul style="list-style-type: none"> • VO—Very anxious observer. • VP—Very anxious passive. • VA—Very anxious new. • AN—Anxious new. • AA—Anxious active. • QA—Quiet active. • LA—Leaving active. • AO—Anxious observer. • QO—Quiet observer. • LO—Leaving observer. • AP—Anxious passive. • QA—Quiet passive.

```

show mvrp      user@host> show mvrp applicant-state
applicant-state MVRP applicant state for routing instance 'default-switch'
                  (VO) Very anxious observer, (VP) Very anxious passive, (VA) Very anxious new,

```

(AN) Anxious new, (AA) Anxious active, (QA) Quiet active, (LA) Leaving active,
(AO) Anxious observer, (QO) Quiet observer, (LO) Leaving observer,
(AP) Anxious passive, (QP) Quiet passive

VLAN Id	Interface	State
100	ge-11/3/0	Declaring (QA)
200	ge-11/3/0	Declaring (QA)
300	ge-11/3/0	Declaring (QA)

show mvrp dynamic-vlan-memberships

Syntax	show mvrp dynamic-vlan-memberships
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display all Virtual LANs (VLANs) that have been created dynamically using Multiple VLAN Registration Protocol (MVRP) on the router.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show mvrp on page 302 • show mvrp applicant-state on page 304 • show mvrp interface on page 307 • show mvrp registration-state on page 308 • show mvrp statistics on page 310
List of Sample Output	show mvrp dynamic-vlan-memberships on page 306
Output Fields	Table 91 on page 306 lists the output fields for the show mvrp dynamic-vlan-memberships command. Output fields are listed in the approximate order in which they appear.

Table 91: show mvrp dynamic-vlan-memberships Output Fields

Field Name	Field Description
VLAN Id	The VLAN ID of the dynamically created VLAN.
Interfaces	The interface or interfaces that are bound to the dynamically created VLAN.

```

show mvrp          user@host> show mvrp dynamic-vlan-memberships
dynamic-vlan-memberships MVRP dynamic vlans for routing instance 'default-switch'
                           (s) static vlan, (f) fixed registration

                           VLAN Id      Interfaces
                           100 (s)      ge-11/3/0
                           200 (s)      ge-11/3/0
                           300 (s)

```


show mvrp interface

Syntax	show mvrp interface
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display Multiple VLAN Registration Protocol (MVRP) interface-specific information.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show mvrp on page 302 • show mvrp applicant-state on page 304 • show mvrp dynamic-vlan-memberships on page 306 • show mvrp registration-state on page 308 • show mvrp statistics on page 310
List of Sample Output	show mvrp interface on page 307
Output Fields	Table 92 on page 307 lists the output fields for the show mvrp interface command. Output fields are listed in the approximate order in which they appear.

Table 92: show mvrp interface Output Fields

Field Name	Field Description
Interface	Interface on which MVRP is configured.
Status	Status of the MVRP: Enabled or Disabled .
Registration Mode	Registration for the interface: Fixed , Forbidden , or Normal .
Applicant Mode	Applicant mode.

```

show mvrp interface  user@host> show mvrp interface
                        MVRP interface information for routing instance 'default-switch'

                        Interface      Status      Registration Mode      Applicant
                        ge-11/2/8      Enabled     Normal                 Normal
                        ge-11/0/9      Enabled     Normal                 Normal
                        ge-11/3/0      Enabled     Normal                 Normal
  
```

show mvrp registration-state

Syntax	show mvrp registration-state
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display Multiple VLAN Registration Protocol (MVRP) registration state information.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show mvrp on page 302 • show mvrp dynamic-vlan-memberships on page 306 • show mvrp interface on page 307 • show mvrp statistics on page 310
List of Sample Output	show mvrp registration-state on page 308
Output Fields	Table 93 on page 308 lists the output fields for the show mvrp registration-state command. Output fields are listed in the approximate order in which they appear.

Table 93: show mvrp registration-state Output Fields

Field Name	Field Description
VLAN Id	Displays the Virtual LAN (VLAN) ID number.
Interface	Displays the interface number associated with the VLAN ID.
Registrar State	Displays whether the registrar state is Registered or Empty .
Forced State	Displays whether the forced state is Registered or Empty .
Managed State	Displays one of the following states: <ul style="list-style-type: none"> • Fixed—VLANs always stay in a registered state and are declared as such on all other forwarding ports. • Normal—VLANs participate in the MVRP protocol and honor incoming join requests normally. • Forbidden—VLANs ignore the incoming join requests and always stay in an unregistered state.
STP State	Displays whether the Spanning Tree Protocol (STP) is Blocking or Forwarding .

```

show mvrp      user@host> show mvrp registration-state
registration-state  MVRP registartion state for routing instance 'default-switch'

      VLAN Id  Interface  Registrar  Forced  Managed  STP
                State      State      State      State      State
            100  ge-11/2/8  Empty      Registered  Fixed      Forwarding
                ge-11/0/9  Empty      Empty      Normal      Forwarding
  
```

	ge-11/3/0	Registered	Registered	Normal	Forwarding
101	ge-11/2/8	Empty	Registered	Fixed	Forwarding
	ge-11/0/9	Empty	Empty	Normal	Forwarding
	ge-11/3/0	Registered	Registered	Normal	Forwarding

show mvrp statistics

Syntax	show mvrp statistics
Release Information	Command introduced in Junos OS Release 10.1.
Description	For MX Series routers, display Multiple VLAN Registration Protocol (MVRP) statistics in the form of Multiple Registration Protocol data unit (MRPDU) messages.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show mvrp on page 302 • show mvrp applicant-state on page 304 • show mvrp dynamic-vlan-memberships on page 306 • show mvrp interface on page 307 • show mvrp registration-state on page 308
List of Sample Output	show mvrp statistics on page 310
Output Fields	Table 94 on page 310 lists the output fields for the show mvrp statistics command. Output fields are listed in the approximate order in which they appear.

Table 94: show mvrp statistics Output Fields

Field Name	Field Description
interface name	Interface for which MVRP statistics are displayed.
VLAN IDs registered	Number of Virtual LAN (VLAN) IDs registered.
Sent MVRP PDUs	Number of MRPDU messages transmitted from the router.
Received MVRP PDUs without error	Number of MRPDU messages received on the router.
Received MVRP PDUs with error	Number of invalid MRPDU messages received on the router.

```

show mvrp statistics  user@host> show mvrp statistics
                        MVRP statistics for routing instance 'default-switch'

                        Interface name           : ge-11/2/8
                        VLAN IDs registered       : 0
                        Sent MVRP PDUs           : 1467
                        Received MVRP PDUs without error: 0
                        Received MVRP PDUs with error  : 0

                        Interface name           : ge-11/0/9
                        VLAN IDs registered       : 0

```

```
Sent MVRP PDUs           : 1418
Received MVRP PDUs without error: 702
Received MVRP PDUs with error  : 0

Interface name           : ge-11/3/0
VLAN IDs registered      : 2
Sent MVRP PDUs           : 1524
Received MVRP PDUs without error: 1366
Received MVRP PDUs with error  : 0
```


CHAPTER 10

OSPF Operational Mode Commands

Table 95 on page 313 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Open Shortest Path First (OSPF) protocol. Commands are listed in alphabetical order.

Table 95: OSPF Operational Mode Commands

Task	Command
Clear link-state database entries.	clear (ospf ospf3) database
Clear OSPF input and output statistics.	clear (ospf ospf3) io-statistics
Tear down neighbor connections.	clear (ospf ospf3) neighbor
Clear the OSPF overload bit.	clear ospf overload
Clear OSPF statistics.	clear (ospf ospf3) statistics
Display information about the level of backup coverage available for OSPF nodes and prefixes.	show (ospf ospf3) backup coverage
Display information about MPLS label-switched-paths (LSPs) designated as backup routes for OSPF routes.	show (ospf ospf3) backup lsp
Display information about OSPF shortest-path-first calculations for backup paths.	show (ospf ospf3) backup spf
Display link-state database entries for OSPFv2.	show ospf database
Display link-state database entries for OSPFv3.	show ospf3 database
Display OSPF interface status.	show (ospf ospf3) interface
Display OSPF input and output statistics.	show (ospf ospf3) io-statistics
Display the SPF log.	show (ospf ospf3) log
Display adjacent routers.	show (ospf ospf3) neighbor

Table 95: OSPF Operational Mode Commands (*continued*)

Task	Command
Display overview statistics.	show (ospf ospf3) overview
Display OSPF routing table entries.	show (ospf ospf3) route
Display OSPF statistics.	show (ospf ospf3) statistics



NOTE: For more OSPF-related commands, such as `show route protocol`, `show route instance`, and `show route table`, see Protocol-Independent Routing Operational Mode Commands. For information about monitoring Bidirectional Forwarding Detection (BFD) sessions for OSPF clients, see BFD Operational Mode Commands. For information about how to configure OSPF, see the *Junos Routing Protocols Configuration Guide*.

clear (ospf | ospf3) database

Syntax	<pre>clear (ospf ospf3) database <advertising-router (<i>router-id</i> self)> <area <i>area-id</i>> <asbrsummary> <external> <instance <i>instance-name</i>> <inter-area-prefix> <inter-area-router> <intra-area-prefix> <link-local> <logical-system (all <i>logical-system-name</i>)> <lsa-id <i>lsa-id</i>> <netsummary> <network> <nssa> <opaque-area> <purge> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)> <router></pre>
Syntax (EX Series Switch)	<pre>clear (ospf ospf3) database <advertising-router (<i>router-id</i> self)> <area <i>area-id</i>> <asbrsummary> <external> <instance <i>instance-name</i>> <inter-area-prefix> <inter-area-router> <intra-area-prefix> <link-local> <lsa-id <i>lsa-id</i>> <netsummary> <network> <nssa> <opaque-area> <purge> <router></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>advertising-router <i>router-id</i>, area <i>area-id</i>, asbrsummary, external, inter-area-prefix, inter-area-router, intra-area-prefix, link-local, lsa-id <i>lsa-id</i>, netsummary, network, nssa, opaque-area, and router options added in Junos OS Release 8.3. You must use the purge command with these options.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>realm option added in Junos OS Release 9.2.</p> <p>advertising-router (<i>router-id</i> self) option added in Junos OS Release 9.5.</p> <p>advertising-router (<i>router-id</i> self) option introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	<p>With the master Routing Engine, delete entries in the Open Shortest Path First (OSPF) link-state advertisement (LSA) database. With the backup Routing Engine, delete the</p>

OSPF LSA database and sync the new database with the master Routing Engine. You can also use the **purge** command with any of the options to discard rather than delete the specified LSA entries.



CAUTION: This command is useful only for testing. Use it with care, because it causes significant network disruption.

- Options**
- none**—Delete all LSAs other than the system's own LSAs, which are regenerated. To resynchronize the database, the system destroys all adjacent neighbors that are in the state **EXSTART** or higher. The neighbors are then reacquired and the databases are synchronized.
 - advertising-router** (*router-id* | **self**)—(Optional) Discard entries for the LSA entries advertised by the specified routing device or by this routing device.
 - area** *area-id*—(Optional) Discard entries for the LSAs in the specified area.
 - asbrsummary**—(Optional) Discard summary AS boundary router LSA entries.
 - external**—(Optional) Discard external LSAs.
 - instance** *instance-name*—(Optional) Delete or discard entries for the specified routing instance only.
 - inter-area-prefix**—(OSPFv3 only) (Optional) Discard interarea prefix LSAs.
 - inter-area-router**—(OSPFv3 only) (Optional) Discard interarea router LSAs.
 - intra-area-prefix**—(OSPFv3 only) (Optional) Discard intra-area prefix LSAs.
 - logical-system** (**all** | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.
 - link-local**—(Optional) Delete link-local LSAs.
 - lsa-id** *lsa-id*—(Optional) Discard the LSA entries with the specified LSA identifier.
 - netsummary**—(Optional) Discard summary network LSAs.
 - network**—(Optional) Discard network LSAs.
 - nssa**—(Optional) Discard not-so-stubby area (NSSA) LSAs.
 - opaque-area**—(Optional) Discard opaque area-scope LSAs.
 - realm** (**ipv4-multicast** | **ipv4-unicast** | **ipv6-multicast**)—(OSPFv3 only) (Optional) Delete the entries for the specified OSPFv3 realm, or address family. Use the **realm** option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.
 - router**—(Optional) Discard router LSAs.

purge—(Optional) Discard all entries in the link-state advertisement database. All link-state advertisements are set to **MAXAGE** and are flooded. The database is repopulated when the originators of the link-state advertisements receive the **MAXAGE** link-state advertisements and reissue them.

Required Privilege Level clear

Related Documentation

- [show ospf database on page 336](#)
- [show ospf3 database on page 344](#)

List of Sample Output clear ospf database on page 317

Output Fields When you enter this command, you are provided feedback on the status of your request.

clear ospf database user@host> clear ospf database

clear (ospf | ospf3) database-protection

Syntax	clear (ospf ospf3) database-protection
Release Information	Command introduced in Junos OS Release 10.2.
Description	Clear the Open Shortest Path First (OSPF) link-state database from its isolated state. Reset the ignore count, ignore timer, and reset timer, and resume normal operations.
Options	This command has no options.
Required Privilege Level	clear
Output Fields	This command produces no output.
clear ospf database-protection	user@host> clear ospf database-protection

clear (ospf | ospf3) io-statistics

Syntax	clear (ospf ospf3) statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear (ospf ospf3) statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Open Shortest Path First (OSPF) input and output statistics.
Options	none—Clear OSPF input and output statistics. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
List of Sample Output	clear ospf io-statistics on page 319
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ospf io-statistics	user@host> clear ospf io-statistics

clear (ospf | ospf3) neighbor

Syntax	clear (ospf ospf3) neighbor <area <i>area-id</i> > <instance <i>instance-name</i> > <interface <i>interface-name</i> > <logical-system (all <i>logical-system-name</i>)> <neighbor> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)>
Syntax (EX Series Switch)	clear (ospf ospf3) neighbor <area <i>area-id</i> > <instance <i>instance-name</i> > <interface <i>interface-name</i> > <neighbor>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. realm option introduced in Junos OS Release 9.2.
Description	Tear down Open Shortest Path First (OSPF) neighbor connections.
Options	<p>none—Tear down OSPF connections with all neighbors for all routing instances.</p> <p>area <i>area-id</i>—(Optional) Tear down neighbor connections for the specified area only.</p> <p>instance <i>instance-name</i>—(Optional) Tear down neighbor connections for the specified routing instance only.</p> <p>interface <i>interface-name</i>—(Optional) Tear down neighbor connections for the specified interface only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor—(Optional) Clear the state of the specified neighbor only.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(Optional) (OSPFv3 only) Clear the state of the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show (ospf ospf3) neighbor on page 363
List of Sample Output	clear ospf neighbor on page 321
Output Fields	When you enter this command, you are provided feedback on the status of your request.

clear ospf neighbor user@host> clear ospf neighbor

clear ospf overload

Syntax	clear ospf overload <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear ospf overload <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear the Open Shortest Path First version 2 (OSPFv2) overload bit and rebuild link-state advertisements (LSAs).
Options	none—Clear the overload bit and rebuild LSAs for all routing instances. instance <i>instance-name</i> —(Optional) Clear the overload bit and rebuild LSAs for the specified routing instance only. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
List of Sample Output	clear ospf overload on page 322
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ospf overload	user@host> clear ospf overload

clear (ospf | ospf3) statistics

Syntax	clear (ospf ospf3) statistics <logical-system (all <i>logical-system-name</i>)> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)>
Syntax (EX Series Switch)	clear (ospf ospf3) statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. realm option introduced in Junos OS Release 9.2.
Description	Clear Open Shortest Path First (OSPF) statistics.
Options	<p>none—Clear OSPF statistics.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(Optional) (OSPFv3 only) Clear statistics for the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show (ospf ospf3) statistics on page 378
List of Sample Output	clear ospf statistics on page 323
Output Fields	See show (ospf ospf3) statistics for an explanation of output fields.

clear ospf statistics The following sample output displays OSPF statistics before and after the **clear ospf statistics** command is entered:

```
user@host> show ospf statistics
```

Packet type	Total		Last 5 seconds	
	Sent	Received	Sent	Received
Hello	3254	2268	3	1
DbD	41	46	0	0
LSReq	8	7	0	0
LSUpdate	212	154	0	0
LSAck	65	98	0	0

LSAs retransmitted: 3, last 5 seconds: 0

Flood queue depth: 0

Total rexmit entries: 0, db summaries: 0, lsreq entries: 0

Receive errors:

626 subnet mismatches

```
user@host> clear ospf statistics
```

```
user@host> show ospf statistics
```

Packet type	Total		Last 5 seconds	
	Sent	Received	Sent	Received
Hello	3	1	3	1
DbD	0	0	0	0
LSReq	0	0	0	0
LSUpdate	0	0	0	0
LSAck	0	0	0	0

LSAs retransmitted: 0, last 5 seconds: 0

Flood queue depth: 0

Total rexmit entries: 0, db summaries: 0, lsreq entries: 0

Receive errors:

None

show (ospf | ospf3) backup coverage

Syntax	show (ospf ospf3) backup coverage <instance <i>instance-name</i> > < logical-system (all <i>logical-system-name</i>)> <realm (ipv4-unicast ipv6-unicast)> <ttopology <i>topology-name</i> >
Release Information	Command introduced in Junos OS Release 10.0.
Description	Display information about the level of backup coverage available for all the nodes and prefixes in the network.
Options	<p>none—Display information about the level backup coverage for all OSPF routing instances in all logical systems.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Display information about the level of backup coverage for all logical systems or for a specific logical system.</p> <p>instance <i>instance-name</i>—(Optional) Display information about the level of backup coverage for a specific OSPF routing instance.</p> <p>realm (ipv4-unicast ipv6-unicast)—(Optional) (OSPFv3 only) Display information about the level of backup coverage for the specific OSPFv3 realm, or address family.</p> <p>topology (default <i>topology-name</i>)—(Optional) (OSPFv2 only) Display information about the level of backup coverage for the specific OSPF topology.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show (ospf ospf3) backup lsp on page 327
List of Sample Output	show ospf backup coverage on page 326 show ospf3 backup coverage on page 326
Output Fields	Table 96 on page 325 lists the output fields for the show (ospf ospf3) backup coverage command. Output fields are listed in the approximate order in which they appear.

Table 96: show (ospf | ospf3) backup coverage Output Fields

Field Name	Field Description
Node Coverage	Information about backup coverage for each OSPF node.
Area	Area number. Area 0.0.0.0 is the backbone.
Covered Nodes	Number of nodes for which backup coverage is available.
Total Nodes	Total number of OSPF nodes.

Table 96: show (ospf | ospf3) backup coverage Output Fields (*continued*)

Field Name	Field Description
Route Coverage	Information about backup coverage for each type of OSPF route.
Path Type	Type of OSPF path: Intra, Inter, Ext1, Ext2, All .
Covered Routes	For each path type, the number of routes for which backup coverage is available.
Total Routes	For each path type, the total number of configured routes.
Percent Covered	For all nodes and for each path type, the percentage for which backup coverage is available.

show ospf backup coverage user@host> show ospf backup coverage
Topology default coverage:

Node Coverage:

Area	Covered Nodes	Total Nodes	Percent Covered
0.0.0.0	4	5	80.00%

Route Coverage:

Path Type	Covered Routes	Total Routes	Percent Covered
Intra	8	14	57.14%
Inter	0	0	100.00%
Ext1	0	0	100.00%
Ext2	1	1	100.00%
All	9	15	60.00%

show ospf3 backup coverage user @host > show ospf3 backup coverage
show ospf3 backup coverage
Node Coverage:

Area	Covered Nodes	Total Nodes	Percent Covered
0.0.0.0	4	5	80.00%

Route Coverage:

Path Type	Covered Routes	Total Routes	Percent Covered
Intra	4	6	66.67%
Inter	0	0	100.00%
Ext1	0	0	100.00%
Ext2	1	1	100.00%
All	5	7	71.43%

show (ospf | ospf3) backup lsp

Syntax `show (ospf | ospf3) backup lsp`
`<logical-system (all | logical-system-name)>`
`<realm (ipv4-unicast | ipv6-unicast)>`

Release Information Command introduced in Junos OS Release 10.0.

Description Display information about MPLS label-switched-paths (LSPs) designated as backup routes for OSPF routes.



NOTE: MPLS LSPs can be used as backup routes only for routes in the default OSPFv2 topology and not for any configured topology. Additionally, MPLS LSPs cannot be used as backup routes for nondefault instances either for OSPFv2 or OSPFv3.

Options none—Display information all MPLS LSPs designated as backup routes.

`logical-system (all | logical-system-name)`—(Optional) Display information about MPLS LSPs designated as backup routes for all logical systems or a specific logical system.

`realm (ipv4-unicast | ipv6-unicast)`—(Optional) (OSPFv3 only) Display information about MPLS LSPs designated as backup routes for a specific realm, or address family.

Required Privilege Level view

Related Documentation

- [show \(ospf | ospf3\) backup coverage on page 325](#)

List of Sample Output

[show ospf backup lsp on page 328](#)
[show ospf3 backup lsp on page 328](#)

Output Fields Table 97 on page 327 lists the output fields for the `show (ospf | ospf3) backup lsp` command. Output fields are listed in the approximate order in which they appear.

Table 97: show (ospf | ospf3) backup lsp Output Fields

Field Name	Field Description
<i>MPLS LSP name</i>	Name of each MPLS LSP designated as a backup path.
Egress	IP address of the egress router for the LSP.

Table 97: show (ospf | ospf3) backup lsp Output Fields (*continued*)

Field Name	Field Description
Status	<p>State of the LSP:</p> <ul style="list-style-type: none"> • Up—The router can detect RSVP hello messages from the neighbor. • Down—The router has received one of the following indications: <ul style="list-style-type: none"> • Communication failure from the neighbor. • Communication from IGP that the neighbor is unavailable. • Change in the sequence numbers in the RSVP hello messages sent by the neighbor. • Deleted—The LSP is no longer available as a backup path.
Last change	Time elapsed since the neighbor state changed either from up or down or from down to up . The format is <i>hh:mm:ss</i> .
TE-metric	Configured traffic engineering metric.
Metric	Configured metric.

show ospf backup lsp

```

user@host> show ospf backup lsp
tobanff
  Egress: 10.255.71.239, Status: up, Last change: 00:00:23
  TE-metric: 0, Metric: 0

```

show ospf3 backup lsp

```

user@host> show ospf3 backup lsp
tobanff
  Egress: 10.255.71.239, Status: up, Last change: 00:00:45
  TE-metric: 0, Metric: 0

```

show (ospf | ospf3) backup spf

Syntax	<pre>show (ospf ospf3) backup spf <brief detail> <area <i>area-id</i>> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <no-coverage> <node-id> <realm (ipv4-unicast ipv6-unicast)> <topology (default <i>topology-name</i>)></pre>
Release Information	Command introduced in JUNOS Release 10.0.
Description	Display information about OSPF shortest-path-first calculations for backup paths.
Options	<p>none—Display information about OSPF shortest-path-first (SPF) calculations for all backup paths for all destination nodes.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>area <i>area-id</i>—(Optional) Display the area information.</p> <p>instance <i>instance-name</i>—(Optional) Display information about the routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Display information about all logical systems or a specific logical system.</p> <p>no-coverage—(Optional) Display information if there is no backup coverage.</p> <p><i>node-id</i>—(Optional) Display information about the node specified.</p> <p>realm (ipv4-unicast ipv6-unicast)—(Optional) Display information about the ipv4 or ipv6 realm.</p> <p>topology (default <i>topology-name</i>)—(Optional) Display information about the default topology or a specific topology.</p>
Required Privilege Level	view
List of Sample Output	<pre>show ospf backup spf on page 330 show ospf backup spf detail on page 330 show ospf3 backup spf on page 333</pre>
Output Fields	Table 98 on page 330 lists the output fields for the show (ospf ospf3) backup spf command. Output fields are listed in the approximate order in which they appear.

Table 98: show (ospf |ospf3) backup spf Output Fields

Field Name	Field Description	Level of Output
Self to Destination Metric	Metric from the node to the destination.	All levels
Parent Node	Address of the parent node.	All levels
Primary next-hop	Address of the next hop.	All levels
Backup Neighbor	Address of the backup neighbor or LSP endpoint and the following information: <ul style="list-style-type: none"> Neighbor to Destination Metric Neighbor to Self Metric Self to Neighbor Metric Status (Eligible, Not Eligible, Not Evaluated) and the reason for the status. <p>NOTE: If the backup neighbor is an LSP endpoint, it is indicated as such after the neighbor address.</p>	All levels

```

show ospf backup spf      user@host> show ospf backup spf
                             Topology default results:

                             Area 0.0.0.0 results:

                             pro16-d-1o0.xxx.yyyy.net
                               Self to Destination Metric: 1
                               Parent Node: pro16-b-1o0.xxx.yyyy.net
                               Primary next-hop: at-1/0/1.0
                               Backup Neighbor: pro16-c-1o0.xxx.yyyy.net (LSP endpoint)
                                 Neighbor to Destination Metric: 4, Neighbor to Self Metric: 3
                                 Self to Neighbor Metric: 3
                                 Not eligible, Reason: Path loops
                               Backup Neighbor: pro16-d-1o0.xxx.yyyy.net
                                 Neighbor to Destination Metric: 0, Neighbor to Self Metric: 1
                                 Self to Neighbor Metric: 1
                                 Not eligible, Reason: Primary next-hop link fate sharing
                               ...

```

```

show ospf backup spf detail user@host> show ospf backup spf detail
                             Topology default results:

                             Area 0.0.0.0 results:

                             11.14.10.2
                               Self to Destination Metric: 1
                               Parent Node: 10.255.70.103
                               Primary next-hop: ae0.0
                               Backup Neighbor: 10.255.71.243
                                 Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
                                 Self to Neighbor Metric: 1
                                 Not eligible, Reason: Path loops
                               Backup Neighbor: 10.255.71.52
                                 Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
                                 Self to Neighbor Metric: 1

```



```
    Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not eligible, Reason: Path loops

10.255.71.52
  Self to Destination Metric: 1
  Parent Node: 11.14.10.2
  Primary next-hop: ae0.0 via 11.14.10.2
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 0, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Path loops
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not eligible, Reason: Path loops

10.255.71.242
  Self to Destination Metric: 1
  Parent Node: 10.255.70.103
  Primary next-hop: as0.0
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 0, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Path loops
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not eligible, Reason: Path loops

10.255.71.243
  Self to Destination Metric: 1
  Parent Node: 10.255.70.103
  Primary next-hop: so-6/0/0.0
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 0, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not eligible, Reason: Path loops
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not eligible, Reason: Path loops

12.15.0.1
  Self to Destination Metric: 2
  Parent Node: 10.255.71.243
  Primary next-hop: so-6/0/0.0
```

```
Backup next-hop: ae0.0 via 11.14.10.2
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 17, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not evaluated, Reason: Interface is already covered

10.255.71.238
Self to Destination Metric: 2
Parent Node: 10.255.71.243
Primary next-hop: so-6/0/0.0
Backup next-hop: as0.0
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not evaluated, Reason: Interface is already covered

10.255.71.239
Self to Destination Metric: 2
Parent Node: 12.15.0.1
Primary next-hop: so-6/0/0.0
Backup next-hop: ae0.0 via 11.14.10.2
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not evaluated, Reason: Interface is already covered

14.15.0.2
Self to Destination Metric: 3
Parent Node: 10.255.71.239
Primary next-hop: so-6/0/0.0
Backup next-hop: ae0.0 via 11.14.10.2
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
```

```

    Self to Neighbor Metric: 1
    Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.242
    Neighbor to Destination Metric: 17, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not evaluated, Reason: Interface is already covered

```

```

show ospf3 backup spf user@host> show ospf3 backup spf
Area 0.0.0.0 results:

```

```

10.255.71.52;0.0.0.5
    Self to Destination Metric: 1
    Parent Node: 10.255.70.103
    Primary next-hop: ae0.0
Backup Neighbor: 10.255.71.243
    Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops
Backup Neighbor: 10.255.71.52
    Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.242
    Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops

10.255.71.52
    Self to Destination Metric: 1
    Parent Node: 10.255.71.52;0.0.0.5
    Primary next-hop: ae0.0 via fe80::290:69ff:fe0f:67f0
Backup Neighbor: 10.255.71.52
    Neighbor to Destination Metric: 0, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.243
    Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops
Backup Neighbor: 10.255.71.242
    Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops

10.255.71.242
    Self to Destination Metric: 1
    Parent Node: 10.255.70.103
    Primary next-hop: as0.0
Backup Neighbor: 10.255.71.242
    Neighbor to Destination Metric: 0, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.243
    Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops
Backup Neighbor: 10.255.71.52
    Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops

```

```
10.255.71.243
  Self to Destination Metric: 1
  Parent Node: 10.255.70.103
  Primary next-hop: so-6/0/0.0
  Backup Neighbor: 10.255.71.243
    Neighbor to Destination Metric: 0, Neighbor to Self Metric: 1
    Self to Neighbor Metric: 1
    Not eligible, Reason: Primary next-hop link fate sharing
  Backup Neighbor: 10.255.71.52
    Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops
  Backup Neighbor: 10.255.71.242
    Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not eligible, Reason: Path loops

10.255.71.243;0.0.0.2
  Self to Destination Metric: 2
  Parent Node: 10.255.71.243
  Primary next-hop: so-6/0/0.0
  Backup next-hop: ae0.0 via fe80::290:69ff:fe0f:67f0
  Backup Neighbor: 10.255.71.243
    Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1
    Self to Neighbor Metric: 1
    Not eligible, Reason: Primary next-hop link fate sharing
  Backup Neighbor: 10.255.71.52
    Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Eligible, Reason: Contributes backup next-hop
  Backup Neighbor: 10.255.71.242
    Neighbor to Destination Metric: 17, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not evaluated, Reason: Interface is already covered

10.255.71.238
  Self to Destination Metric: 2
  Parent Node: 10.255.71.243
  Primary next-hop: so-6/0/0.0
  Backup next-hop: as0.0
  Backup Neighbor: 10.255.71.243
    Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1
    Self to Neighbor Metric: 1
    Not eligible, Reason: Primary next-hop link fate sharing
  Backup Neighbor: 10.255.71.242
    Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Eligible, Reason: Contributes backup next-hop
  Backup Neighbor: 10.255.71.52
    Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
    Self to Neighbor Metric: 1
    Not evaluated, Reason: Interface is already covered

10.255.71.239
  Self to Destination Metric: 2
  Parent Node: 10.255.71.243;0.0.0.2
  Primary next-hop: so-6/0/0.0
  Backup next-hop: ae0.0 via fe80::290:69ff:fe0f:67f0
  Backup Neighbor: 10.255.71.243
    Neighbor to Destination Metric: 1, Neighbor to Self Metric: 1
    Self to Neighbor Metric: 1
```

```
    Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 16, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not evaluated, Reason: Interface is already covered

10.255.71.239;0.0.0.4
  Self to Destination Metric: 3
  Parent Node: 10.255.71.239
  Primary next-hop: so-6/0/0.0
  Backup next-hop: ae0.0 via fe80::290:69ff:fe0f:67f0
Backup Neighbor: 10.255.71.243
  Neighbor to Destination Metric: 2, Neighbor to Self Metric: 1
  Self to Neighbor Metric: 1
  Not eligible, Reason: Primary next-hop link fate sharing
Backup Neighbor: 10.255.71.52
  Neighbor to Destination Metric: 15, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Eligible, Reason: Contributes backup next-hop
Backup Neighbor: 10.255.71.242
  Neighbor to Destination Metric: 17, Neighbor to Self Metric: 15
  Self to Neighbor Metric: 1
  Not evaluated, Reason: Interface is already covered
```

show ospf database

Syntax	<pre>show ospf database <brief detail extensive summary> <advertising-router (<i>address</i> self)> <area <i>area-id</i>> <asbrsummary> <external> <instance <i>instance-name</i>> <link-local> <logical-system (all <i>logical-system-name</i>)> <lsa-id <i>lsa-id</i>> <netsummary> <network> <nssa> <opaque-area> <router></pre>
Syntax (EX Series Switch)	<pre>show ospf database <brief detail extensive summary> <advertising-router (<i>address</i> self)> <area <i>area-id</i>> <asbrsummary> <external> <instance <i>instance-name</i>> <link-local> <lsa-id <i>lsa-id</i>> <netsummary> <network> <nssa> <opaque-area> <router></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>advertising-router self (<i>address</i> self) option introduced in Junos OS Release 9.5.</p> <p>advertising-router self (<i>address</i> self) option introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	Display the entries in the Open Shortest Path First version 2 (OSPFv2) link-state database, which contains data about link-state advertisement (LSA) packets.
Options	<p>none—Display standard information about entries in the OSPFv2 link-state database for all routing instances.</p> <p>brief detail extensive summary—(Optional) Display the specified level of output.</p> <p>advertising-router (<i>address</i> self)—(Optional) Display the LSAs advertised either by a particular routing device or by this routing device.</p> <p>area <i>area-id</i>—(Optional) Display the LSAs in a particular area.</p> <p>asbrsummary—(Optional) Display summary AS boundary router LSA entries.</p>

external—(Optional) Display external LSAs.

instance *instance-name*—(Optional) Display all OSPF database information under the named routing instance.

link-local—(Optional) Display information about link-local LSAs.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

lsa-id *lsa-id*—(Optional) Display the LSA with the specified LSA identifier.

netsummary—(Optional) Display summary network LSAs.

network—(Optional) Display information about network LSAs.

nssa—(Optional) Display information about not-so-stubby area (NSSA) LSAs.

opaque-area—(Optional) Display opaque area-scope LSAs.

router—(Optional) Display information about router LSAs.

Required Privilege Level

view

Related Documentation

- [clear \(ospf | ospf3\) database on page 315](#)

List of Sample Output

[show ospf database on page 338](#)
[show ospf database brief on page 339](#)
[show ospf database detail on page 339](#)
[show ospf database extensive on page 340](#)
[show ospf database summary on page 342](#)

Output Fields

Table 99 on page 337 describes the output fields for the **show ospf database** command. Output fields are listed in the approximate order in which they appear.

Table 99: show ospf database Output Fields

Field Name	Field Description	Level of Output
area	Area number. Area 0.0.0.0 is the backbone area.	All levels
Type	Type of link advertisement: ASBR Sum, Extern, Network, NSSA, OpaqArea, Router, or Summary.	All levels
ID	LSA identifier included in the advertisement. An asterisk preceding the identifier marks database entries that originated from the local routing device.	All levels
Adv Rtr	Address of the routing device that sent the advertisement.	All levels
Seq	Link sequence number of the advertisement.	All levels
Age	Time elapsed since the LSA was originated, in seconds.	All levels

Table 99: show ospf database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Cksum	Checksum value of the LSA.	All levels
Len	Length of the advertisement, in bytes.	All levels
Router	Router link-state advertisement information: <ul style="list-style-type: none"> bits—Flags describing the routing device that generated the LSP. link count—Number of links in the advertisement. id—ID of a routing device or subnet on the link. data—For stub networks, the subnet mask; otherwise, the IP address of the routing device that generated the LSP. type—Type of link. It can be PointToPoint, Transit, Stub, or Virtual. TOS count—Number of type-of-service (ToS) entries in the advertisement. TOS 0 metric—Metric for ToS 0. TOS—Type-of-service (ToS) value. metric—Metric for the ToS. 	detail extensive
Network	Network link-state advertisement information: <ul style="list-style-type: none"> mask—Network mask. attached router—ID of the attached neighbor. 	detail extensive
Summary	Summary link-state advertisement information: <ul style="list-style-type: none"> mask—Network mask. TOS—Type-of-service (ToS) value. metric—Metric for the ToS. 	detail extensive
Gen timer	How long until the LSA is regenerated.	extensive
Aging time	How long until the LSA expires.	extensive
Installed <i>hh:mm:ss</i> ago	How long ago the route was installed.	extensive
expires in <i>hh:mm:ss</i>	How long until the route expires.	extensive
Ours	Indicates that this is a local advertisement.	extensive
Router LSAs	Number of router link-state advertisements in the link-state database.	summary
Network LSAs	Number of network link-state advertisements in the link-state database.	summary
Summary LSAs	Number of summary link-state advertisements in the link-state database.	summary

```

show ospf database  user@host> show ospf database
                    OSPF link state database, Area 0.0.0.1
                    Type          ID              Adv Rtr        Seq      Age  Opt  Cksum  Len

```


Router	10.255.70.103	10.255.70.103	0x80000002	215	0x20	0x4112	48
Router	*10.255.71.242	10.255.71.242	0x80000002	214	0x20	0x11b1	48
Summary	*23.1.1.0	10.255.71.242	0x80000002	172	0x20	0x6d72	28
Summary	*24.1.1.0	10.255.71.242	0x80000002	177	0x20	0x607e	28
NSSA	*33.1.1.1	10.255.71.242	0x80000002	217	0x28	0x73bd	36

OSPF link state database, Area 0.0.0.2

Type	ID	Adv Rtr	Seq	Age	Opt	Cksum	Len
Router	10.255.71.52	10.255.71.52	0x80000004	174	0x20	0xd021	36
Router	*10.255.71.242	10.255.71.242	0x80000003	173	0x20	0xe191	36
Network	*23.1.1.1	10.255.71.242	0x80000002	173	0x20	0x9c76	32
Summary	*12.1.1.0	10.255.71.242	0x80000001	217	0x20	0xfeec	28
Summary	*24.1.1.0	10.255.71.242	0x80000002	177	0x20	0x607e	28
NSSA	*33.1.1.1	10.255.71.242	0x80000001	222	0x28	0xe047	36

OSPF link state database, Area 0.0.0.3

Type	ID	Adv Rtr	Seq	Age	Opt	Cksum	Len
Router	10.255.71.238	10.255.71.238	0x80000003	179	0x20	0x3942	36
Router	*10.255.71.242	10.255.71.242	0x80000003	177	0x20	0xf37d	36
Network	*24.1.1.1	10.255.71.242	0x80000002	177	0x20	0xc591	32
Summary	*12.1.1.0	10.255.71.242	0x80000001	217	0x20	0xfeec	28
Summary	*23.1.1.0	10.255.71.242	0x80000002	172	0x20	0x6d72	28
NSSA	*33.1.1.1	10.255.71.242	0x80000001	222	0x28	0xeb3b	36

show ospf database brief The output for the **show ospf database brief** command is identical to that for the **show ospf database** command. For sample output, see **show ospf database** on page 338.

show ospf database detail

```
user@host> show ospf database detail
```

OSPF link state database, Area 0.0.0.1

Type	ID	Adv Rtr	Seq	Age	Opt	Cksum	Len
Router	10.255.70.103	10.255.70.103	0x80000002	261	0x20	0x4112	48
bits 0x0, link count 2							
id 10.255.71.242, data 12.1.1.1, Type PointToPoint (1)							
TOS count 0, TOS 0 metric 1							
id 12.1.1.0, data 255.255.255.0, Type Stub (3)							
TOS count 0, TOS 0 metric 1							
Router	*10.255.71.242	10.255.71.242	0x80000002	260	0x20	0x11b1	48
bits 0x3, link count 2							
id 10.255.70.103, data 12.1.1.2, Type PointToPoint (1)							
TOS count 0, TOS 0 metric 1							
id 12.1.1.0, data 255.255.255.0, Type Stub (3)							
TOS count 0, TOS 0 metric 1							
Summary	*23.1.1.0	10.255.71.242	0x80000002	218	0x20	0x6d72	28
mask 255.255.255.0							
TOS 0x0, metric 1							
Summary	*24.1.1.0	10.255.71.242	0x80000002	223	0x20	0x607e	28
mask 255.255.255.0							
TOS 0x0, metric 1							
NSSA	*33.1.1.1	10.255.71.242	0x80000002	263	0x28	0x73bd	36
mask 255.255.255.255							
Type 2, TOS 0x0, metric 0, fwd addr 12.1.1.2, tag 0.0.0.0							

OSPF link state database, Area 0.0.0.2

Type	ID	Adv Rtr	Seq	Age	Opt	Cksum	Len
Router	10.255.71.52	10.255.71.52	0x80000004	220	0x20	0xd021	36
bits 0x0, link count 1							
id 23.1.1.1, data 23.1.1.2, Type Transit (2)							
TOS count 0, TOS 0 metric 1							
Router	*10.255.71.242	10.255.71.242	0x80000003	219	0x20	0xe191	36
bits 0x3, link count 1							

```

    id 23.1.1.1, data 23.1.1.1, Type Transit (2)
    TOS count 0, TOS 0 metric 1
Network *23.1.1.1          10.255.71.242    0x80000002    219  0x20 0x9c76   32
    mask 255.255.255.0
    attached router 10.255.71.242
    attached router 10.255.71.52
Summary *12.1.1.0          10.255.71.242    0x80000001    263  0x20 0xfeec   28
    mask 255.255.255.0
    TOS 0x0, metric 1
Summary *24.1.1.0          10.255.71.242    0x80000002    223  0x20 0x607e   28
    mask 255.255.255.0
    TOS 0x0, metric 1
NSSA  *33.1.1.1           10.255.71.242    0x80000001    268  0x28 0xe047   36
    mask 255.255.255.255
    Type 2, TOS 0x0, metric 0, fwd addr 23.1.1.1, tag 0.0.0.0

```

```

    OSPF link state database, Area 0.0.0.3
Type      ID          Adv Rtr      Seq      Age  Opt  Cksum  Len
Router  10.255.71.238  10.255.71.238  0x80000003  225  0x20 0x3942  36
    bits 0x0, link count 1
    id 24.1.1.1, data 24.1.1.2, Type Transit (2)
    TOS count 0, TOS 0 metric 1
Router  *10.255.71.242  10.255.71.242  0x80000003  223  0x20 0xf37d  36
    bits 0x3, link count 1
    id 24.1.1.1, data 24.1.1.1, Type Transit (2)
    TOS count 0, TOS 0 metric 1
Network *24.1.1.1          10.255.71.242    0x80000002    223  0x20 0xc591   32
    mask 255.255.255.0
    attached router 10.255.71.242
    attached router 10.255.71.238
Summary *12.1.1.0          10.255.71.242    0x80000001    263  0x20 0xfeec   28
    mask 255.255.255.0
    TOS 0x0, metric 1
Summary *23.1.1.0          10.255.71.242    0x80000002    218  0x20 0x6d72   28
    mask 255.255.255.0
    TOS 0x0, metric 1
NSSA  *33.1.1.1           10.255.71.242    0x80000001    268  0x28 0xeb3b   36
    mask 255.255.255.255
    Type 2, TOS 0x0, metric 0, fwd addr 24.1.1.1, tag 0.0.0.0

```

show ospf database extensive

```

user@host> show ospf database extensive
    OSPF link state database, Area 0.0.0.1
Type      ID          Adv Rtr      Seq      Age  Opt  Cksum  Len
Router  10.255.70.103  10.255.70.103  0x80000002  286  0x20 0x4112  48
    bits 0x0, link count 2
    id 10.255.71.242, data 12.1.1.1, Type PointToPoint (1)
    TOS count 0, TOS 0 metric 1
    id 12.1.1.0, data 255.255.255.0, Type Stub (3)
    TOS count 0, TOS 0 metric 1
    Aging timer 00:55:14
    Installed 00:04:43 ago, expires in 00:55:14
    Last changed 00:04:43 ago, Change count: 2
Router  *10.255.71.242  10.255.71.242  0x80000002  285  0x20 0x11b1  48
    bits 0x3, link count 2
    id 10.255.70.103, data 12.1.1.2, Type PointToPoint (1)
    TOS count 0, TOS 0 metric 1
    id 12.1.1.0, data 255.255.255.0, Type Stub (3)
    TOS count 0, TOS 0 metric 1
    Gen timer 00:45:15
    Aging timer 00:55:15
    Installed 00:04:45 ago, expires in 00:55:15, sent 00:04:43 ago

```

```

Last changed 00:04:45 ago, Change count: 2, Ours
Summary *23.1.1.0      10.255.71.242    0x80000002    243    0x20 0x6d72    28
mask 255.255.255.0
TOS 0x0, metric 1
Gen timer 00:45:57
Aging timer 00:55:57
Installed 00:04:03 ago, expires in 00:55:57, sent 00:04:01 ago
Last changed 00:04:48 ago, Change count: 1, Ours
Summary *24.1.1.0      10.255.71.242    0x80000002    248    0x20 0x607e    28
mask 255.255.255.0
TOS 0x0, metric 1
Gen timer 00:45:52
Aging timer 00:55:52
Installed 00:04:08 ago, expires in 00:55:52, sent 00:04:06 ago
Last changed 00:04:48 ago, Change count: 1, Ours
NSSA  *33.1.1.1        10.255.71.242    0x80000002    288    0x28 0x73bd    36
mask 255.255.255.255
Type 2, TOS 0x0, metric 0, fwd addr 12.1.1.2, tag 0.0.0.0
Gen timer 00:45:12
Aging timer 00:55:12
Installed 00:04:48 ago, expires in 00:55:12, sent 00:04:48 ago
Last changed 00:04:48 ago, Change count: 2, Ours

```

OSPF link state database, Area 0.0.0.2

Type	ID	Adv Rtr	Seq	Age	Opt	Cksum	Len
Router	10.255.71.52	10.255.71.52	0x80000004	245	0x20	0xd021	36
bits 0x0, link count 1							
id 23.1.1.1, data 23.1.1.2, Type Transit (2)							
TOS count 0, TOS 0 metric 1							
Aging timer 00:55:55							
Installed 00:04:02 ago, expires in 00:55:55							
Last changed 00:04:02 ago, Change count: 2							
Router	*10.255.71.242	10.255.71.242	0x80000003	244	0x20	0xe191	36
bits 0x3, link count 1							
id 23.1.1.1, data 23.1.1.1, Type Transit (2)							
TOS count 0, TOS 0 metric 1							
Gen timer 00:45:56							
Aging timer 00:55:56							
Installed 00:04:04 ago, expires in 00:55:56, sent 00:04:02 ago							
Last changed 00:04:04 ago, Change count: 2, Ours							
Network	*23.1.1.1	10.255.71.242	0x80000002	244	0x20	0x9c76	32
mask 255.255.255.0							
attached router 10.255.71.242							
attached router 10.255.71.52							
Gen timer 00:45:56							
Aging timer 00:55:56							
Installed 00:04:04 ago, expires in 00:55:56, sent 00:04:02 ago							
Last changed 00:04:04 ago, Change count: 1, Ours							
Summary	*12.1.1.0	10.255.71.242	0x80000001	288	0x20	0xfeec	28
mask 255.255.255.0							
TOS 0x0, metric 1							
Gen timer 00:45:12							
Aging timer 00:55:12							
Installed 00:04:48 ago, expires in 00:55:12, sent 00:04:04 ago							
Last changed 00:04:48 ago, Change count: 1, Ours							
Summary	*24.1.1.0	10.255.71.242	0x80000002	248	0x20	0x607e	28
mask 255.255.255.0							
TOS 0x0, metric 1							
Gen timer 00:45:52							
Aging timer 00:55:52							
Installed 00:04:08 ago, expires in 00:55:52, sent 00:04:04 ago							

```

Last changed 00:04:48 ago, Change count: 1, Ours
NSSA   *33.1.1.1           10.255.71.242    0x80000001    293   0x28 0xe047   36
mask 255.255.255.255
Type 2, TOS 0x0, metric 0, fwd addr 23.1.1.1, tag 0.0.0.0
Gen timer 00:45:07
Aging timer 00:55:07
Installed 00:04:53 ago, expires in 00:55:07, sent 00:04:04 ago
Last changed 00:04:53 ago, Change count: 1, Ours

OSPF link state database, Area 0.0.0.3
Type      ID              Adv Rtr          Seq           Age  Opt  Cksum  Len
Router  10.255.71.238      10.255.71.238    0x80000003     250  0x20 0x3942  36
bits 0x0, link count 1
id 24.1.1.1, data 24.1.1.2, Type Transit (2)
TOS count 0, TOS 0 metric 1
Aging timer 00:55:50
Installed 00:04:07 ago, expires in 00:55:50
Last changed 00:04:07 ago, Change count: 2
Router  *10.255.71.242    10.255.71.242    0x80000003     248  0x20 0xf37d  36
bits 0x3, link count 1
id 24.1.1.1, data 24.1.1.1, Type Transit (2)
TOS count 0, TOS 0 metric 1
Gen timer 00:45:52
Aging timer 00:55:52
Installed 00:04:08 ago, expires in 00:55:52, sent 00:04:06 ago
Last changed 00:04:08 ago, Change count: 2, Ours
Network *24.1.1.1        10.255.71.242    0x80000002     248  0x20 0xc591  32
mask 255.255.255.0
attached router 10.255.71.242
attached router 10.255.71.238
Gen timer 00:45:52
Aging timer 00:55:52
Installed 00:04:08 ago, expires in 00:55:52, sent 00:04:06 ago
Last changed 00:04:08 ago, Change count: 1, Ours
Summary *12.1.1.0        10.255.71.242    0x80000001     288  0x20 0xfeec  28
mask 255.255.255.0
TOS 0x0, metric 1
Gen timer 00:45:12
Aging timer 00:55:12
Installed 00:04:48 ago, expires in 00:55:12, sent 00:04:13 ago
Last changed 00:04:48 ago, Change count: 1, Ours
Summary *23.1.1.0        10.255.71.242    0x80000002     243  0x20 0x6d72  28
mask 255.255.255.0
TOS 0x0, metric 1
Gen timer 00:45:57
Aging timer 00:55:57
Installed 00:04:03 ago, expires in 00:55:57, sent 00:04:01 ago
Last changed 00:04:48 ago, Change count: 1, Ours
NSSA   *33.1.1.1           10.255.71.242    0x80000001    293   0x28 0xeb3b   36
mask 255.255.255.255
Type 2, TOS 0x0, metric 0, fwd addr 24.1.1.1, tag 0.0.0.0
Gen timer 00:45:07
Aging timer 00:55:07
Installed 00:04:53 ago, expires in 00:55:07, sent 00:04:13 ago
Last changed 00:04:53 ago, Change count: 1, Ours

```

```

show ospf database summary user@host> show ospf database summary
summary Area 0.0.0.1:

```

```

    2 Router LSAs
    2 Summary LSAs
    1 NSSA LSAs

```

```
Area 0.0.0.2:
  2 Router LSAs
  1 Network LSAs
  2 Summary LSAs
  1 NSSA LSAs
Area 0.0.0.3:
  2 Router LSAs
  1 Network LSAs
  2 Summary LSAs
  1 NSSA LSAs
Externals:
Interface fe-2/2/1.0:
Interface ge-0/3/2.0:
Interface so-0/1/2.0:
Interface so-0/1/2.0:
```

show ospf3 database

Syntax	<pre>show ospf3 database <brief detail extensive summary> <advertising-router (address self)> <area area-id> <external> <instance instance-name> <inter-area-prefix> <inter-area-router> <intra-area-prefix> <link> <link-local> <logical-system (all logical-system-name)> <lsa-id lsa-id> <network> <nssa> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)> <router></pre>
Syntax (EX Series Switch)	<pre>show ospf3 database <brief detail extensive summary> <advertising-router (address self)> <area area-id> <external> <instance instance-name> <inter-area-prefix> <inter-area-router> <intra-area-prefix> <link> <link-local> <lsa-id lsa-id> <network> <nssa> <router></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>realm option introduced in Junos OS Release 9.2.</p> <p>advertising-router (address self) option introduced in Junos Release 9.5.</p> <p>advertising-router (address self) option introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	Display the entries in the Open Shortest Path First version 3 (OSPFv3) link-state database, which contains data about link-state advertisement (LSA) packets.
Options	<p>none—Display standard information about all entries in the OSPFv3 link-state database.</p> <p>brief detail extensive summary—(Optional) Display the specified level of output.</p> <p>advertising-router (address self)—(Optional) Display the LSAs advertised either by a particular routing device or by this routing device.</p>

`area area-id`—(Optional) Display the LSAs in a particular area.

`external`—(Optional) Display external LSAs.

`instance instance-name`—(Optional) Display all OSPF database information under the named routing instance.

`inter-area-prefix`—(Optional) Display information about interarea-prefix LSAs.

`inter-area-router`—(Optional) Display information about interarea-router LSAs.

`intra-area-prefix`—(Optional) Display information about intra-area-prefix LSAs.

`link`—(Optional) Display information about link LSAs.

`link-local`—(Optional) Display information about link-local LSAs.

`logical-system (all | logical-system-name)`—(Optional) Perform this operation on all logical systems or on a particular logical system.

`lsa-id lsa-id`—(Optional) Display the LSA with the specified LSA identifier.

`network`—(Optional) Display information about network LSAs.

`nssa`—(Optional) Display information about not-so-stubby area (NSSA) LSAs.

`realm (ipv4-multicast | ipv4-unicast | ipv6-multicast)`—(Optional) Display information about the specified OSPFv3 realm, or address family. Use the **realm** option to specify an address family other than IPv6 unicast, which is the default.

`router`—(Optional) Display information about router LSAs.

Required Privilege Level view

Related Documentation • [clear \(ospf | ospf3\) database on page 315](#)

List of Sample Output [show ospf3 database brief on page 350](#)
[show ospf3 database extensive on page 350](#)
[show ospf3 database summary on page 353](#)

Output Fields Table 100 on page 345 lists the output fields for the **show ospf3 database** command. Output fields are listed in the approximate order in which they appear.

Table 100: show ospf3 database Output Fields

Field Name	Field Description	Level of Output
OSPF link state database, area <i>area-number</i>	Entries in the link-state database for this area.	brief detail extensive
OSPF AS SCOPE link state database	Entries in the AS scope link-state database.	brief detail extensive

Table 100: show ospf3 database Output Fields (*continued*)

Field Name	Field Description	Level of Output
OSPF Link-Local link state database, interface interface-name	Entries in the link-local link-state database for this interface.	brief detail extensive
area	Area number. Area 0.0.0.0 is the backbone area.	All levels
Type	Type of link advertisement: Extern , InterArPfx , InterArRtr , IntraArPrx , Link , Network , NSSA , or Router .	brief detail extensive
ID	Link identifier included in the advertisement. An asterisk (*) preceding the identifier marks database entries that originated from the local routing device.	brief detail extensive
Adv Rtr	Address of the routing device that sent the advertisement.	brief detail extensive
Seq	Link sequence number of the advertisement.	brief detail extensive
Age	Time elapsed since the LSA was originated, in seconds.	brief detail extensive
Cksum	Checksum value of the LSA.	brief detail extensive
Len	Length of the advertisement, in bytes.	brief detail extensive
Router (Router Link-State Advertisements)		
bits	Flags describing the routing device that generated the LSP.	detail extensive
Options	Option bits carried in the router LSA.	detail extensive
For Each Router Link		
Type	Type of interface. The value of all other output fields describing a routing device interface depends on the interface's type: <ul style="list-style-type: none"> • PointToPoint (1)—Point-to-point connection to another routing device. • Transit (2)—Connection to a transit network. • Virtual (4)—Virtual link. 	detail extensive
Loc-if-id	Local interface ID assigned to the interface that uniquely identifies the interface with the routing device.	detail extensive
Nbr-if-id	Interface ID of the neighbor's interface for this routing device link.	detail extensive
Nbr-rtr-id	Router ID of the neighbor routing device (for type 2 interfaces, the attached link's designated router).	detail extensive
Metric	Cost of the router link.	detail extensive
Gen timer	How long until the LSA is regenerated, in the format <i>hours:minutes:seconds</i> .	extensive

Table 100: show ospf3 database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Aging timer	How long until the LSA expires, in the format <i>hours:minutes:seconds</i> .	extensive
Installed <i>nn:nn:nn</i> ago	How long ago the route was installed, in the format <i>hours:minutes:seconds</i> .	extensive
expires in <i>nn:nn:nn</i>	How long until the route expires, in the format <i>hours:minutes:seconds</i> .	extensive
sent <i>nn:nn:nn</i> ago	Time elapsed since the LSA was last transmitted or flooded to an adjacency or an interface, respectively, in the format <i>hours:minutes:seconds</i> .	extensive
Ours	Indicates that this is a local advertisement.	extensive
Network (Network Link-State Advertisements)		
Options	Option bits carried in the network LSA.	detail extensive
Attached Router	Router IDs of each of the routing devices attached to the link. Only routing devices that are fully adjacent to the designated router are listed. The designated router includes itself in this list.	detail extensive
InterArPfx (Interarea-Prefix Link-State Advertisements)		
Prefix	IPv6 address prefix.	detail extensive
Prefix-options	Option bit associated with the prefix.	detail extensive
Metric	Cost of this route. Expressed in the same units as the interface costs in the router LSAs. When the interarea-prefix LSA is describing a route to a range of addresses, the cost is set to the maximum cost to any reachable component of the address range.	detail extensive
Gen timer	How long until the LSA is regenerated, in the format <i>hours:minutes:seconds</i> .	extensive
Aging timer	How long until the LSA expires, in the format <i>hours:minutes:seconds</i> .	extensive
Installed <i>nn:nn:nn</i> ago	How long ago the route was installed, in the format <i>hours:minutes:seconds</i> .	extensive
expires in <i>nn:nn:nn</i>	How long until the route expires, in the format <i>hours:minutes:seconds</i> .	extensive
sent <i>nn:nn:nn</i> ago	Time elapsed since the LSA was last transmitted or flooded to an adjacency or an interface, respectively, in the format <i>hours:minutes:seconds</i> .	extensive
Ours	Indicates that this is a local advertisement.	extensive
InterArRtr (Interarea-Router Link-State Advertisements)		
Dest-router-id	Router ID of the routing device described by the LSA.	detail extensive
options	Optional capabilities supported by the routing device.	detail extensive

Table 100: show ospf3 database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Metric	Cost of this route. Expressed in the same units as the interface costs in the router LSAs. When the interarea-prefix LSA is describing a route to a range of addresses, the cost is set to the maximum cost to any reachable component of the address range.	detail extensive
Prefix	IPv6 address prefix.	extensive
Prefix-options	Option bit associated with the prefix.	extensive
Extern (External Link-State Advertisements)		
Prefix	IPv6 address prefix.	detail extensive
Prefix-options	Option bit associated with the prefix.	detail extensive
Metric	Cost of the route, which depends on the value of Type .	detail extensive
Type <i>n</i>	Type of external metric: Type 1 or Type 2 .	detail extensive
Aging timer	How long until the LSA expires, in the format <i>hours:minutes:seconds</i> .	extensive
Installed <i>nn:nn:nn</i> ago	How long ago the route was installed, in the format <i>hours:minutes:seconds</i> .	extensive
expires in <i>nn:nn:nn</i>	How long until the route expires, in the format <i>hours:minutes:seconds</i> .	extensive
sent <i>nn:nn:nn</i> ago	Time elapsed since the LSA was last transmitted or flooded to an adjacency or an interface, respectively, in the format <i>hours:minutes:seconds</i> .	extensive
Link (Link-State Advertisements)		
IPv6-Address	IPv6 link-local address on the link for which this link LSA originated.	detail extensive
Options	Option bits carried in the link LSA.	detail extensive
priority	Router priority of the interface attaching the originating routing device to the link.	detail extensive
Prefix-count	Number of IPv6 address prefixes contained in the LSA. The rest of the link LSA contains a list of IPv6 prefixes to be associated with the link.	detail extensive
Prefix	IPv6 address prefix.	detail extensive
Prefix-options	Option bit associated with the prefix.	detail extensive
Gen timer	How long until the LSA is regenerated, in the format <i>hours:minutes:seconds</i> .	extensive
Aging timer	How long until the LSA expires, in the format <i>hours:minutes:seconds</i> .	extensive

Table 100: show ospf3 database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Installed <i>nn:nn:nn</i> ago	How long ago the route was installed, in the format <i>hours:minutes:seconds</i> .	extensive
expires in <i>nn:nn:nn</i>	How long until the route expires, in the format <i>hours:minutes:seconds</i> .	extensive
sent <i>nn:nn:nn</i> ago	Time elapsed since the LSA was last transmitted or flooded to an adjacency or an interface, respectively, in the format <i>hours:minutes:seconds</i> .	extensive
Ours	Indicates that this is a local advertisement.	extensive
IntraArPfx (Intra-Area-Prefix Link-State Advertisements)		
Ref-lsa-type	LSA type of the referenced LSA. <ul style="list-style-type: none">• Router—Address prefixes are associated with a router LSA.• Network—Address prefixes are associated with a network LSA.	detail extensive
Ref-lsa-id	Link-state ID of the referenced LSA.	detail extensive
Ref-router-id	Advertising router ID of the referenced LSA.	detail extensive
Prefix-count	Number of IPv6 address prefixes contained in the LSA. The rest of the link LSA contains a list of IPv6 prefixes to be associated with the link.	detail extensive
Prefix	IPv6 address prefix.	detail extensive
Prefix-options	Option bit associated with the prefix.	detail extensive
Metric	Cost of this prefix. Expressed in the same units as the interface costs in the router LSAs.	detail extensive
Gen timer	How long until the LSA is regenerated, in the format <i>hours:minutes:seconds</i> .	extensive
Aging timer	How long until the LSA expires, in the format <i>hours:minutes:seconds</i> .	extensive
Installed <i>hh:mm:ss</i> ago	How long ago the route was installed, in the format <i>hours:minutes:seconds</i> .	extensive
expires in <i>hh:mm:ss</i>	How long until the route expires, in the format <i>hours:minutes:seconds</i> .	extensive
sent <i>hh:mm:ss</i> ago	Time elapsed since the LSA was last transmitted or flooded to an adjacency or an interface, respectively, in the format <i>hours:minutes:seconds</i> .	extensive
<i>n</i> Router LSAs	Number of router LSAs in the link-state database.	summary
<i>n</i> Network LSAs	Number of network LSAs in the link-state database.	summary
<i>n</i> InterArPfx LSAs	Number of interarea-prefix LSAs in the link-state database.	summary

Table 100: show ospf3 database Output Fields (*continued*)

Field Name	Field Description	Level of Output
<i>n</i> InterArRtr LSAs	Number of interarea-router LSAs in the link-state database.	summary
<i>n</i> IntraArPfx LSAs	Number of intra-area-prefix LSAs in the link-state database.	summary
Externals	Display of the external LSA database.	summary
<i>n</i> Extern LSAs	Number of external LSAs in the link-state database.	summary
Interface <i>interface-name</i>	Name of the interface for which link-local LSA information is displayed.	summary
<i>n</i> Link LSAs	Number of link LSAs in the link-state database.	summary

```

show ospf3 database brief
user@host> show ospf3 database brief
OSPF3 link state database, area 0.0.0.0
  Type      ID          Adv Rtr      Seq          Age    Cksum  Len
  Router    0.0.0.1        10.255.4.85  0x80000003   885    0xa697 40
  Router    *0.0.0.1        10.255.4.93  0x80000002   953    0xc677 40
  InterArPfx *0.0.0.2        10.255.4.93  0x80000001   910    0xb96f 44
  InterArRtr *0.0.0.1        10.255.4.93  0x80000001   910    0xe159 32
  IntraArPfx *0.0.0.1        10.255.4.93  0x80000002   432    0x788f 72

OSPF3 link state database, area 0.0.0.1
  Type      ID          Adv Rtr      Seq          Age    Cksum  Len
  Router    *0.0.0.1        10.255.4.93  0x80000003   916    0xea40 40
  Router    0.0.0.1        10.255.4.97  0x80000006   851    0xc95b 40
  Network   0.0.0.2        10.255.4.97  0x80000002   916    0x4598 32
  InterArPfx *0.0.0.1        10.255.4.93  0x80000002   117    0xa980 44
  InterArPfx *0.0.0.2        10.255.4.93  0x80000002   62     0xd47e 44
  NSSA      0.0.0.1        10.255.4.97  0x80000002   362    0x45ee 44
  IntraArPfx 0.0.0.1        10.255.4.97  0x80000006   851    0x2f77 52

OSPF3 AS SCOPE link state database
  Type      ID          Adv Rtr      Seq          Age    Cksum  Len
  Extern    0.0.0.1        10.255.4.85  0x80000002   63     0x9b86 44
  Extern    *0.0.0.1        10.255.4.93  0x80000001   910    0x59c9 44

OSPF3 Link-Local link state database, interface ge-1/3/0.0
  Type      ID          Adv Rtr      Seq          Age    Cksum  Len
  Link      *0.0.0.2        10.255.4.93  0x80000003   916    0x4dab 64

show ospf3 database extensive
user@host> show ospf3 database extensive
OSPF3 link state database, area 0.0.0.0
  Type      ID          Adv Rtr      Seq          Age    Cksum  Len
  Router    0.0.0.1        10.255.4.85  0x80000003  1028    0xa697 40
  bits 0x2, Options 0x13
  Type PointToPoint (1), Metric 10
  Loc-If-Id 2, Nbr-If-Id 3, Nbr-Rtr-Id 10.255.4.93
  Aging timer 00:42:51
  Installed 00:17:05 ago, expires in 00:42:52, sent 02:37:54 ago
  Router    *0.0.0.1        10.255.4.93  0x80000002  1096    0xc677 40
  bits 0x3, Options 0x13
  Type PointToPoint (1), Metric 10

```

```

    Loc-If-Id 3, Nbr-If-Id 2, Nbr-Rtr-Id 10.255.4.85
    Gen timer 00:00:40
    Aging timer 00:41:44
    Installed 00:18:16 ago, expires in 00:41:44, sent 00:18:14 ago
    Ours
InterArPfx *0.0.0.2          10.255.4.93      0x80000001  1053  0xb96f  44
    Prefix feee::10:10:2:0/126
    Prefix-options 0x0, Metric 10
    Gen timer 00:17:02
    Aging timer 00:42:26
    Installed 00:17:33 ago, expires in 00:42:27, sent 00:17:31 ago
    Ours
InterArPfx *0.0.0.3          10.255.4.93      0x80000001  1053  0x71d3  44
    Prefix feee::10:255:4:97/128
    Prefix-options 0x0, Metric 10
    Gen timer 00:21:07
    Aging timer 00:42:26
    Installed 00:17:33 ago, expires in 00:42:27, sent 00:17:31 ago
    Ours
InterArRtr *0.0.0.1          10.255.4.93      0x80000001  1053  0xe159  32
    Dest-router-id 10.255.4.97, Options 0x19, Metric 10
    Gen timer 00:29:18
    Aging timer 00:42:26
    Installed 00:17:33 ago, expires in 00:42:27, sent 00:17:31 ago
    Ours
IntraArPfx 0.0.0.1          10.255.4.85      0x80000002  1028  0x2403  72
    Ref-lsa-type Router, Ref-lsa-id 0.0.0.0, Ref-router-id 10.255.4.85
    Prefix-count 2
    Prefix feee::10:255:4:85/128
    Prefix-options 0x2, Metric 0
    Prefix feee::10:10:1:0/126
    Prefix-options 0x0, Metric 10
    Aging timer 00:42:51
    Installed 00:17:05 ago, expires in 00:42:52, sent 02:37:54 ago
IntraArPfx *0.0.0.1          10.255.4.93      0x80000002   575  0x788f  72
    Ref-lsa-type Router, Ref-lsa-id 0.0.0.0, Ref-router-id 10.255.4.93
    Prefix-count 2
    Prefix feee::10:255:4:93/128
    Prefix-options 0x2, Metric 0
    Prefix feee::10:10:1:0/126
    Prefix-options 0x0, Metric 10
    Gen timer 00:33:23
    Aging timer 00:50:24
    Installed 00:09:35 ago, expires in 00:50:25, sent 00:09:33 ago
    OSPF3 link state database, area 0.0.0.1
    Type      ID          Adv Rtr      Seq          Age  Cksum  Len
Router      *0.0.0.1      10.255.4.93  0x80000003  1059  0xea40  40
    bits 0x3, Options 0x19
    Type Transit (2), Metric 10
    Loc-If-Id 2, Nbr-If-Id 2, Nbr-Rtr-Id 10.255.4.97
    Gen timer 00:08:51
    Aging timer 00:42:20
    Installed 00:17:39 ago, expires in 00:42:21, sent 00:17:37 ago
Router      0.0.0.1      10.255.4.97  0x80000006   994  0xc95b  40
    bits 0x2, Options 0x19
    Type Transit (2), Metric 10
    Loc-If-Id 2, Nbr-If-Id 2, Nbr-Rtr-Id 10.255.4.97
    Aging timer 00:43:25
    Installed 00:16:31 ago, expires in 00:43:26, sent 02:37:54 ago
Network     0.0.0.2          10.255.4.97  0x80000002  1059  0x4598  32
    Options 0x11

```

```

Attached router 10.255.4.97
Attached router 10.255.4.93
Aging timer 00:42:20
Installed 00:17:36 ago, expires in 00:42:21, sent 02:37:54 ago
InterArPfx *0.0.0.1      10.255.4.93      0x80000002    260  0xa980  44
Prefix feee::10:10:1:0/126
Prefix-options 0x0, Metric 10
Gen timer 00:45:39
Aging timer 00:55:39
Installed 00:04:20 ago, expires in 00:55:40, sent 00:04:18 ago
Ours
InterArPfx *0.0.0.2      10.255.4.93      0x80000002    205  0xd47e  44
Prefix feee::10:255:4:93/128
Prefix-options 0x0, Metric 0
Gen timer 00:46:35
Aging timer 00:56:35
Installed 00:03:25 ago, expires in 00:56:35, sent 00:03:23 ago
Ours
InterArPfx *0.0.0.3      10.255.4.93      0x80000001   1089  0x9bbb  44
Prefix feee::10:255:4:85/128
Prefix-options 0x0, Metric 10
Gen timer 00:04:46
Aging timer 00:41:51
Installed 00:18:09 ago, expires in 00:41:51, sent 00:17:43 ago
Ours
NSSA      0.0.0.1      10.255.4.97      0x80000002    505  0x45ee  44
Prefix feee::200:200:1:0/124
Prefix-options 0x8, Metric 10, Type 2,
Aging timer 00:51:35
Installed 00:08:22 ago, expires in 00:51:35, sent 02:37:54 ago
IntraArPfx 0.0.0.1      10.255.4.97      0x80000006    994  0x2f77  52
Ref-lsa-type Router, Ref-lsa-id 0.0.0.0, Ref-router-id 10.255.4.97
Prefix-count 1
Prefix feee::10:255:4:97/128
Prefix-options 0x2, Metric 0
Aging timer 00:43:25
Installed 00:16:31 ago, expires in 00:43:26, sent 02:37:54 ago
IntraArPfx 0.0.0.3      10.255.4.97      0x80000002   1059  0x4446  52
Ref-lsa-type Network, Ref-lsa-id 0.0.0.2, Ref-router-id 10.255.4.97
Prefix-count 1
Prefix feee::10:10:2:0/126
Prefix-options 0x0, Metric 0
Aging timer 00:42:20
Installed 00:17:36 ago, expires in 00:42:21, sent 02:37:54 ago
  OSPF3 AS SCOPE link state database
  Type      ID      Adv Rtr      Seq      Age  Cksum  Len
Extern     0.0.0.1      10.255.4.85    0x80000002    206  0x9b86  44
Prefix feee::100:100:1:0/124
Prefix-options 0x0, Metric 20, Type 2,
Aging timer 00:56:34
Installed 00:03:23 ago, expires in 00:56:34, sent 02:37:54 ago
Extern     *0.0.0.1      10.255.4.93    0x80000001   1053  0x59c9  44
Prefix feee::200:200:1:0/124
Prefix-options 0x0, Metric 10, Type 2,
Gen timer 00:25:12
Aging timer 00:42:26
Installed 00:17:33 ago, expires in 00:42:27, sent 00:17:31 ago

  OSPF3 Link-Local link state database, interface ge-1/3/0.0
  Type      ID      Adv Rtr      Seq      Age  Cksum  Len
Link       *0.0.0.2      10.255.4.93    0x80000003   1059  0x4dab  64

```

```

fe80::290:69ff:fe39:1cdb
Options 0x11, priority 128
Prefix-count 1
Prefix feee::10:10:2:0/126 Prefix-options 0x0
Gen timer 00:12:56
Aging timer 00:42:20
Installed 00:17:39 ago, expires in 00:42:21, sent 00:17:37 ago
Link      0.0.0.2      10.255.4.97      0x80000003      205 0xa87d 64
fe80::290:69ff:fe38:883e
Options 0x11, priority 128
Prefix-count 1
Prefix feee::10:10:2:0/126 Prefix-options 0x0
Aging timer 00:56:35
Installed 00:03:22 ago, expires in 00:56:35, sent 02:37:54 ago

```

```

OSPF3 Link-Local link state database, interface so-2/2/0.0
Type      ID          Adv Rtr      Seq          Age  Cksum  Len
Link      0.0.0.2      10.255.4.85  0x80000002   506 0x42bb 64
fe80::280:42ff:fe10:f169
Options 0x13, priority 128
Prefix-count 1
Prefix feee::10:10:1:0/126 Prefix-options 0x0
Aging timer 00:51:34
Installed 00:08:23 ago, expires in 00:51:34, sent 02:37:54 ago
Link      *0.0.0.3      10.255.4.93  0x80000002   505 0x6b7a 64
fe80::280:42ff:fe10:f177
Options 0x13, priority 128
Prefix-count 1
Prefix feee::10:10:1:0/126 Prefix-options 0x0
Gen timer 00:37:28
Aging timer 00:51:35
Installed 00:08:25 ago, expires in 00:51:35, sent 00:08:23 ago
Ours

```

show ospf3 database summary user@host> show ospf3 database summary

```

Area 0.0.0.0:
  2 Router LSAs
  1 InterArPfx LSAs
  1 InterArRtr LSAs
  1 IntraArPfx LSAs
Area 0.0.0.1:
  2 Router LSAs
  1 Network LSAs
  2 InterArPfx LSAs
  1 NSSA LSAs
  1 IntraArPfx LSAs
Externals:
  2 Extern LSAs
Interface ge-1/3/0.0:
  1 Link LSAs
Interface lo0.0:
Interface so-2/2/0.0:
  1 Link LSAs

```

show (ospf | ospf3) interface

Syntax	<code>show (ospf ospf3) interface</code> <code><brief detail extensive></code> <code><area <i>area-id</i>></code> <code><interface-name></code> <code><instance <i>instance-name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><realm (ipv4-multicast ipv4-unicast ipv6-multicast)></code>
Syntax (EX Series Switch)	<code>show (ospf ospf3) interface</code> <code><brief detail extensive></code> <code><area <i>area-id</i>></code> <code><interface-name></code> <code><instance <i>instance-name</i>></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. area option introduced in Junos OS Release 9.2. area option introduced in Junos OS Release 9.2 for EX Series switches. realm option introduced in Junos OS Release 9.2.
Description	Display the status of Open Shortest Path First (OSPF) interfaces.
Options	<p>none—Display standard information about the status of all OSPF interfaces for all routing instances</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>area <i>area-id</i>—(Optional) Display information about the interfaces that belong to the specified area.</p> <p>interface-name—(Optional) Display information for the specified interface.</p> <p>instance <i>instance-name</i>—(Optional) Display all OSPF interfaces under the named routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(Optional) (OSPFv3 only) Display information about the interfaces for the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.</p>
Required Privilege Level	view
List of Sample Output	<code>show ospf interface brief</code> on page 356 <code>show ospf interface detail</code> on page 356 <code>show ospf3 interface detail</code> on page 357 <code>show ospf interface detail(When Multiarea Adjacency Is Configured)</code> on page 357

show ospf interface area area-id on page 358

show ospf interface extensive (When Flooding Reduction Is Enabled) on page 358

Output Fields Table 101 on page 355 lists the output fields for the **show (ospf | ospf3) interface** command. Output fields are listed in the approximate order in which they appear.

Table 101: show (ospf | ospf3) interface Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface running OSPF version 2 or OSPF version 3.	All levels
State	State of the interface: BDR , Down , DR , DRother , Loop , PtToPt , or Waiting .	All levels
Area	Number of the area that the interface is in.	All levels
DR ID	Address of the area's designated router.	All levels
BDR ID	Backup designated router for a particular subnet.	All levels
Nbrs	Number of neighbors on this interface.	All levels
Type	Type of interface: LAN , NBMA , P2MP , P2P , or Virtual .	detail extensive
Address	IP address of the neighbor.	detail extensive
Mask	Netmask of the neighbor.	detail extensive
Prefix-length	(OSPFv3) IPv6 prefix length, in bits.	detail extensive
OSPF3-Intf-Index	(OSPFv3) OSPF version 3 interface index.	detail extensive
MTU	Interface's maximum transmission unit (MTU).	detail extensive
Cost	Interface's cost (metric).	detail extensive
DR addr	Address of the designated router.	detail extensive
BDR addr	Address of the backup designated router.	detail extensive
Adj count	Number of adjacent neighbors.	detail extensive
Secondary	Indicates that this interface is configured as a secondary interface for this area. This interface can belong to more than one area, but can be designated as a primary interface only for one area.	detail extensive
Flood Reduction	Indicates that this interface is configured with flooding reduction. All self-originated LSAs from this interface are initially sent with the DoNotAge bit set. As a result, LSAs are refreshed only when a change occurs.	extensive
Priority	Router priority used in designated router (DR) election on this interface.	detail extensive

Table 101: show (ospf | ospf3) interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Flood list	List of link-state advertisements (LSAs) that might be about to flood this interface.	extensive
Ack list	Acknowledgment list. List of pending acknowledgments on this interface.	extensive
Descriptor list	List of packet descriptors.	extensive
Hello	Configured value for the Hello timer.	detail extensive
Dead	Configured value for the Dead timer.	detail extensive
Auth type	(OSPFv2) Authentication mechanism for sending and receiving OSPF protocol packets: <ul style="list-style-type: none"> • MD5—MD5 mechanism is configured in accordance with RFC 2328. • None—No authentication method is configured. • Password—Simple password (RFC 2328) is configured. 	detail extensive
Topology	(Multiarea adjacency) Name of topology: default or <i>name</i>	
IPSec SA name	(OSPFv2) Name of the IPSec security association name	detail extensive
Active key ID	(OSPFv2 and MD5) Number from 0 to 255 that uniquely identifies an MD5 key.	detail extensive
Start time	(OSPFv2 and MD5) Time at which the routing device starts using an MD5 key to authenticate OSPF packets transmitted on the interface on which this key is configured. To authenticate received OSPF protocol packets, the key becomes effective immediately after the configuration is committed. If the start time option is not configured, the key is effective immediately for send and receive and is displayed as Start time 1970 Jan 01 00:00:00 PST .	detail extensive
ReXmit	Configured value for the Retransmit timer.	detail extensive
Stub, Not Stub, or Stub NSSA	Type of area.	detail extensive

```

show ospf interface user@host> show ospf interface brief
brief
Intf          State Area      DR ID      BDR ID      Nbrs
at-5/1/0.0    PtToPt  0.0.0.0    0.0.0.0    0.0.0.0     1
ge-2/3/0.0    DR      0.0.0.0    192.168.4.16 192.168.4.15 1
lo0.0         DR      0.0.0.0    192.168.4.16 0.0.0.0     0
so-0/0/0.0    Down    0.0.0.0    0.0.0.0    0.0.0.0     0
so-6/0/1.0    PtToPt  0.0.0.0    0.0.0.0    0.0.0.0     1
so-6/0/2.0    Down    0.0.0.0    0.0.0.0    0.0.0.0     0
so-6/0/3.0    PtToPt  0.0.0.0    0.0.0.0    0.0.0.0     1

show ospf interface user@host> show ospf interface detail
detail
Interface      State Area      DR ID      BDR ID      Nbrs
fe-0/0/1.0     BDR  0.0.0.0    192.168.37.12 10.255.245.215 1
Type LAN, address 192.168.37.11, Mask 255.255.255.248, MTU 4460, Cost 40

```

```

DR addr 192.168.37.12, BDR addr 192.168.37.11, Adj count 1, Priority 128
Hello 10, Dead 40, ReXmit 5, Not Stub
t1-0/2/1.0          PtToPt  0.0.0.0          0.0.0.0          0.0.0.0 0
Type P2P, Address 0.0.0.0, Mask 0.0.0.0, MTU 1500, Cost 2604
Adj count 0
Hello 10, Dead 40, ReXmit 5, Not Stub
Auth type: MD5, Active key ID 3, Start time 2002 Nov 19 10:00:00 PST
IPsec SA Name: sa

```

**show ospf3 interface
detail**

```

user@host> show ospf3 interface so-0/0/3.0 detail
Interface          State      Area      DR-ID      BDR-ID      Nbrs
so-0/0/3.0         PtToPt    0.0.0.0    0.0.0.0    0.0.0.0     1
Address fe80::2a0:a5ff:fe28:1dfc, Prefix-length 64
OSPF3-Intf-index 1, Type P2P, MTU 4470, Cost 12, Adj-count 1
Hello 10, Dead 40, ReXmit 5, Not Stub

```

**show ospf interface
detail
(When Multiarea
Adjacency Is
Configured)**

```

user@host> show ospf interface detail
regress@router> show ospf interface detail
Interface          State      Area      DR ID      BDR ID      Nbrs
lo0.0              DR        0.0.0.0    10.255.245.2 0.0.0.0     0

Type: LAN, Address: 127.0.0.1, Mask: 255.255.255.255, MTU: 65535, Cost: 0
DR addr: 127.0.0.1, Adj count: 0, Priority: 128
Hello: 10, Dead: 40, ReXmit: 5, Not Stub
Auth type: None
Topology default (ID 0) -> Cost: 0
lo0.0              DR        0.0.0.0    10.255.245.2 0.0.0.0     0

Type: LAN, Address: 10.255.245.2, Mask: 255.255.255.255, MTU: 65535, Cost: 0
DR addr: 10.255.245.2, Adj count: 0, Priority: 128
Hello: 10, Dead: 40, ReXmit: 5, Not Stub
Auth type: None
Topology default (ID 0) -> Cost: 0
so-0/0/0.0         PtToPt    0.0.0.0    0.0.0.0    0.0.0.0     1

Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1
Adj count: 1
Hello: 10, Dead: 40, ReXmit: 5, Not Stub
Auth type: None
Topology default (ID 0) -> Cost: 1
so-0/0/0.0         PtToPt    0.0.0.0    0.0.0.0    0.0.0.0     0

Type: P2P, Address: 192.168.37.46, Mask: 255.255.255.254, MTU: 4470, Cost: 1
Adj count: 0, , Passive
Hello: 10, Dead: 40, ReXmit: 5, Not Stub
Auth type: None
Topology default (ID 0) -> Passive, Cost: 1
so-1/0/0.0         PtToPt    0.0.0.0    0.0.0.0    0.0.0.0     1

Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1
Adj count: 1
Hello: 10, Dead: 40, ReXmit: 5, Not Stub
Auth type: None
Topology default (ID 0) -> Cost: 1
so-1/0/0.0         PtToPt    0.0.0.0    0.0.0.0    0.0.0.0     0

Type: P2P, Address: 192.168.37.54, Mask: 255.255.255.254, MTU: 4470, Cost: 1
Adj count: 0, , Passive
Hello: 10, Dead: 40, ReXmit: 5, Not Stub
Auth type: None
Topology default (ID 0) -> Passive, Cost: 1

```

```

so-0/0/0.0          PtToPt  1.1.1.1          0.0.0.0          0.0.0.0          1

  Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1
  Adj count: 1, Secondary
  Hello: 10, Dead: 40, ReXmit: 5, Not Stub
  Auth type: None
  Topology default (ID 0) -> Cost: 1
so-1/0/0.0          PtToPt  1.1.1.1          0.0.0.0          0.0.0.0          1

  Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1
  Adj count: 1, Secondary
  Hello: 10, Dead: 40, ReXmit: 5, Not Stub
  Auth type: None
  Topology default (ID 0) -> Cost: 1
so-0/0/0.0          PtToPt  2.2.2.2          0.0.0.0          0.0.0.0          1

  Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1
  Adj count: 1, Secondary
  Hello: 10, Dead: 40, ReXmit: 5, Not Stub
  Auth type: None
  Topology default (ID 0) -> Cost: 1
so-1/0/0.0          PtToPt  2.2.2.2          0.0.0.0          0.0.0.0          1

  Type: P2P, Address: 0.0.0.0, Mask: 0.0.0.0, MTU: 4470, Cost: 1
  Adj count: 1, Secondary
  Hello: 10, Dead: 40, ReXmit: 5, Not Stub
  Auth type: None
  Topology default (ID 0) -> Cost: 1

```

**show ospf interface
area area-id**

```

user@host> show ospf interface area 1.1.1.1
Interface      State  Area      DR ID      BDR ID      Nbrs
so-0/0/0.0     PtToPt 1.1.1.1    0.0.0.0    0.0.0.0    1
so-1/0/0.0     PtToPt 1.1.1.1    0.0.0.0    0.0.0.0    1

```

**show ospf interface
extensive
(When Flooding
Reduction Is Enabled)**

```

user@host> show ospf interface extensive
Interface      State  Area      DR ID      BDR ID      Nbrs
fe-0/0/0.0     PtToPt 0.0.0.0    0.0.0.0    0.0.0.0    0

  Type: P2P, Address: 10.10.10.1, Mask: 255.255.255.0, MTU: 1500, Cost: 1
  Adj count: 0
  Secondary, Flood Reduction
  Hello: 10, Dead: 40, ReXmit: 5, Not Stub
  Auth type: None
  Topology default (ID 0) -> Cost: 1

```

show (ospf | ospf3) io-statistics

Syntax	show (ospf ospf3) io-statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show (ospf ospf3) io-statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Open Shortest Path First (OSPF) input and output statistics.
Options	none—Display OSPF input and output statistics. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear (ospf ospf3) statistics on page 323
List of Sample Output	show ospf io-statistics on page 359
Output Fields	Table 102 on page 359 lists the output fields for the show ospf io-statistics command. Output fields are listed in the approximate order in which they appear.

Table 102: show (ospf | ospf3) io-statistics Output Fields

Field Name	Field Description
Packets read	Number of OSPF packets read since the last time the routing protocol was started.
average per run	Total number of packets divided by the total number of times the OSPF read operation is scheduled to run.
max run	Maximum number of packets for a given run among all scheduled runs.
Receive errors	Number of faulty packets received with errors.

show ospf io-statistics user@host> show ospf io-statistics

Packets read: 7361, average per run: 1.00, max run: 1
 Receive errors:
 None

show (ospf | ospf3) log

Syntax	show (ospf ospf3) log <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)> <topology <i>topology-name</i> >
Syntax (EX Series Switch)	show (ospf ospf3) log <instance <i>instance-name</i> > <topology <i>topology-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. topology option introduced in Junos OS Release 9.0. topology option introduced in Junos OS Release 9.0 for EX Series switches. realm option introduced in Junos OS Release 9.2.
Description	Display the entries in the Open Shortest Path First (OSPF) log of SPF calculations.
Options	none—Display entries in the OSPF log of SPF calculations for all routing instances. instance <i>instance-name</i> —(Optional) Display entries for the specified routing instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. topology <i>topology-name</i> —(Optional) Display entries for the specified topology. realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(OSPFv3 only) (Optional) Display entries for the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.
Required Privilege Level	view
List of Sample Output	show ospf log on page 361 show ospf log topology voice on page 361
Output Fields	Table 103 on page 360 lists the output fields for the show (ospf ospf3) log command. Output fields are listed in the approximate order in which they appear.

Table 103: show (ospf | ospf3) log Output Fields

Field Name	Field Description
When	Time, in weeks (w) and days (d), since the SPF calculation was made.
Type	Type of calculation: Cleanup , External , Interarea , NSSA , Redist , SPF , Stub , Total , or Virtuallink .

Table 103: show (ospf | ospf3) log Output Fields (*continued*)

Field Name	Field Description
Elapsed	Amount of time, in seconds, that elapsed during the operation, or the time required to complete the SPF calculation. The start time is the time displayed in the When field.

```

show ospf log user@host> show ospf log
When          Type          Elapsed
1w4d 17:25:58 Stub          0.000017
1w4d 17:25:58 SPF            0.000070
1w4d 17:25:58 Stub          0.000019
1w4d 17:25:58 Interarea     0.000054
1w4d 17:25:58 External      0.000005
1w4d 17:25:58 Cleanup       0.000203
1w4d 17:25:58 Total         0.000537
1w4d 17:24:48 SPF            0.000125
1w4d 17:24:48 Stub          0.000017
1w4d 17:24:48 SPF            0.000100
1w4d 17:24:48 Stub          0.000016
1w4d 17:24:48 Interarea     0.000056
1w4d 17:24:48 External      0.000005
1w4d 17:24:48 Cleanup       0.000238
1w4d 17:24:48 Total         0.000600
...

```

```

show ospf log topology voice user@host> show ospf log topology voice
voice Topology voice SPF log:

    Last instance of each event type
When          Type          Elapsed
00:06:11      SPF            0.000116
00:06:11      Stub          0.000114
00:06:11      Interarea     0.000126
00:06:11      External      0.000067
00:06:11      NSSA          0.000037
00:06:11      Cleanup       0.000186

    Maximum length of each event type
When          Type          Elapsed
00:13:43      SPF            0.000140
00:13:33      Stub          0.000116
00:13:43      Interarea     0.000128
00:13:33      External      0.000075
00:13:38      NSSA          0.000039
00:13:53      Cleanup       0.000657

    Last 100 events
When          Type          Elapsed
00:13:53      SPF            0.000090
00:13:53      Stub          0.000041
00:13:53      Interarea     0.000123
00:13:53      External      0.000040
00:13:53      NSSA          0.000038
00:13:53      Cleanup       0.000657
00:13:53      Total         0.001252

```

```

.
.
00:06:11      SPF      0.000116
00:06:11      Stub     0.000114
00:06:11      Interarea 0.000126
00:06:11      External 0.000067
00:06:11      NSSA     0.000037
00:06:11      Cleanup  0.000186
00:06:11      Total    0.000818

```


show (ospf | ospf3) neighbor

Syntax	<pre>show (ospf ospf3) neighbor <brief detail extensive> <area <i>area-id</i>> <instance (all <i>instance-name</i>)> <interface <i>interface-name</i>> <logical-system (all <i>logical-system-name</i>)> <neighbor> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)></pre>
Syntax (EX Series Switch)	<pre>show (ospf ospf3) neighbor <brief detail extensive> <area <i>area-id</i>> <instance (all <i>instance-name</i>)> <interface <i>interface-name</i>> <neighbor></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>instance all option introduced in Junos OS Release 9.1.</p> <p>instance all option introduced in Junos OS Release 9.1 for EX Series switches.</p> <p>area, interface, and realm options introduced in Junos OS Release 9.2.</p> <p>area and interface options introduced in Junos OS Release 9.2 for EX Series switches.</p>
Description	Display information about Open Shortest Path First (OSPF) neighbors.
Options	<p>none—Display standard information about all OSPF neighbors for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>area <i>area-id</i>—(Optional) Display information about the OSPF neighbors for the specified area.</p> <p>instance (all <i>instance-name</i>)—(Optional) Display all OSPF interfaces for all routing instances or under the named routing instance.</p> <p>interface <i>interface-name</i>—(Optional) Display information about OSPF neighbors for the specified logical interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor—(Optional) Display information about the specified OSPF neighbor.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(Optional) (OSPFv3 only) Display information about the OSPF neighbors for the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.</p>
Required Privilege Level	view

Related Documentation • [clear \(ospf | ospf3\) neighbor on page 320](#)

List of Sample Output [show ospf neighbor brief on page 365](#)
[show ospf neighbor detail on page 365](#)
[show ospf neighbor extensive on page 366](#)
[show ospf3 neighbor detail on page 367](#)
[show ospf neighbor area area-id on page 367](#)
[show ospf neighbor interface interface-name on page 367](#)
[show ospf3 neighbor instance all \(OSPFv3 Multiple Family Address Support Enabled\) on page 367](#)

Output Fields Table 104 on page 364 lists the output fields for the **show (ospf | ospf3) neighbor** command. Output fields are listed in the approximate order in which they appear.

Table 104: show (ospf | ospf3) neighbor Output Fields

Field Name	Field Description	Level of Output
Address	Address of the neighbor.	All levels
Interface	Interface through which the neighbor is reachable.	All levels
State	State of the neighbor: <ul style="list-style-type: none"> • Attempt—Valid only for neighbors attached to nonbroadcast networks. It indicates that no recent information has been received from the neighbor, but that a more concerted effort must be made to contact the neighbor. • Down—Initial state of a neighbor conversation. It indicates that no recent information has been received from the neighbor. Hello packets might continue to be sent to neighbors in the Down state, although at a reduced frequency. • Exchange—Routing device is describing its entire link-state database by sending database description packets to the neighbor. Each packet has a sequence number and is explicitly acknowledged. • ExStart—First step in creating an adjacency between the two neighboring routing devices. The goal of this step is to determine which routing device is the master, and to determine the initial sequence number. • Full—Neighboring routing devices are fully adjacent. These adjacencies appear in router link and network link advertisements. • Init—A Hello packet has recently been sent by the neighbor. However, bidirectional communication has not yet been established with the neighbor. This state may occur, for example, because the routing device itself did not appear in the neighbor's hello packet. • Loading—Link-state request packets are sent to the neighbor to acquire more recent advertisements that have been discovered (but not yet received) in the Exchange state. • 2Way—Communication between the two routing devices is bidirectional. This state has been ensured by the operation of the Hello Protocol. This is the most advanced state short of beginning adjacency establishment. The (backup) designated router is selected from the set of neighbors in state 2Way or greater. 	All levels
ID	Router ID of the neighbor.	All levels

Table 104: show (ospf | ospf3) neighbor Output Fields (*continued*)

Field Name	Field Description	Level of Output
Pri	Priority of the neighbor to become the designated router.	All levels
Dead	Number of seconds until the neighbor becomes unreachable.	All levels
Link state acknowledgment list	Number of link-state acknowledgments received.	extensive
Link state retransmission list	Total number of link-state advertisements retransmitted. For extensive output only, the following information is also displayed: <ul style="list-style-type: none"> Type—Type of link advertisement: ASBR, Sum, Extern, Network, NSSA, OpaqArea, Router, or Summary. LSA ID—LSA identifier included in the advertisement. An asterisk preceding the identifier marks database entries that originated from the local routing device. Adv rtr—Address of the routing device that sent the advertisement. Seq—Link sequence number of the advertisement. 	detail extensive
Neighbor-address	(OSPFv3 only) If the neighbor uses virtual links, the Neighbor-address is the site-local, local, or global address. If the neighbor uses a physical interface, the Neighbor-address is an IPv6 link-local address.	detail extensive
area	Area that the neighbor is in.	detail extensive
OSPF3-Intf-Index	(OSPFv3 only) Displays the OSPFv3 interface index.	detail extensive
opt	Option bits received in the hello packets from the neighbor.	detail extensive
DR or DR-ID	Address of the designated router.	detail extensive
BDR or BDR-ID	Address of the backup designated router.	detail extensive
Up	Length of time since the neighbor came up.	detail extensive
adjacent	Length of time since the adjacency with the neighbor was established.	detail extensive

```

show ospf neighbor brief
user@host> show ospf neighbor brief
      Address      Intf      State      ID          Pri  Dead
192.168.254.225    fxp3.0    2Way      10.250.240.32 128   36
192.168.254.230    fxp3.0    Full      10.250.240.8  128   38
192.168.254.229    fxp3.0    Full      10.250.240.35 128   33
10.1.1.129         fxp2.0    Full      10.250.240.12 128   37
10.1.1.131         fxp2.0    Full      10.250.240.11 128   38
10.1.2.1           fxp1.0    Full      10.250.240.9  128   32
10.1.2.81          fxp0.0    Full      10.250.240.10 128   33

show ospf neighbor detail
user@host> show ospf neighbor detail

```

```

Address      Interface      State      ID          Pri  Dead
10.5.1.2     ge-1/2/0.1       Full      10.5.1.2    128  37
area 0.0.0.1, opt 0x42, DR 10.5.1.2, BDR 10.5.1.1
Up 06:09:28, adjacent 05:17:36
Link state acknowledgment list: 3 entries

Link state retransmission list: 9 entries

10.5.10.2    ge-1/2/0.10      ExStart   10.5.1.38   128  34
area 0.0.0.1, opt 0x42, DR 10.5.10.2, BDR 10.5.10.1
Up 06:09:28
master, seq 0xac1530f8, rexmit DBD in 3 sec
rexmit LSREQ in 0 sec

10.5.11.2    ge-1/2/0.11      Full      10.5.1.42   128  38
area 0.0.0.1, opt 0x42, DR 10.5.11.2, BDR 10.5.11.1
Up 06:09:28, adjacent 05:26:46
Link state retransmission list: 1 entries

10.5.12.2    ge-1/2/0.12      ExStart   10.5.1.46   128  33
area 0.0.0.1, opt 0x42, DR 10.5.12.2, BDR 10.5.12.1
Up 06:09:28
master, seq 0xac188a68, rexmit DBD in 2 sec
rexmit LSREQ in 0 sec

```

show ospf neighbor extensive

```

user@host> show ospf neighbor extensive
Address      Interface      State      ID          Pri  Dead
10.5.1.2     ge-1/2/0.1     Full      10.5.1.2    128  33
area 0.0.0.1, opt 0x42, DR 10.5.1.2, BDR 10.5.1.1
Up 06:09:42, adjacent 05:17:50
Link state retransmission list:

Type      LSA ID      Adv rtr      Seq
Summary   10.8.56.0   172.25.27.82 0x80000004d
Router    10.5.1.94   10.5.1.94    0x80000005c
Network   10.5.24.2   10.5.1.94    0x800000036
Summary   10.8.57.0   172.25.27.82 0x800000024
Extern    1.10.90.0   10.8.1.2     0x800000041
Extern    1.4.109.0   10.6.1.2     0x800000041
Router    10.5.1.190  10.5.1.190   0x80000005f
Network   10.5.48.2   10.5.1.190   0x80000003d
Summary   10.8.58.0   172.25.27.82 0x80000004d
Extern    1.10.91.0   10.8.1.2     0x800000041
Extern    1.4.110.0   10.6.1.2     0x800000041
Router    10.5.1.18   10.5.1.18    0x80000005f
Network   10.5.5.2    10.5.1.18    0x800000033
Summary   10.8.59.0   172.25.27.82 0x80000003a

```

```

Summary 10.8.62.0 172.25.27.82 0x80000025

10.5.10.2 ge-1/2/0.10 ExStart 10.5.1.38 128 38
area 0.0.0.1, opt 0x42, DR 10.5.10.2, BDR 10.5.10.1
Up 06:09:42
master, seq 0xac1530f8, rexmit DBD in 2 sec
rexmit LSREQ in 0 sec
10.5.11.2 ge-1/2/0.11 Full 10.5.1.42 128 33
area 0.0.0.1, opt 0x42, DR 10.5.11.2, BDR 10.5.11.1
Up 06:09:42, adjacent 05:27:00
Link state retransmission list:

Type LSA ID Adv rtr Seq
Summary 10.8.58.0 172.25.27.82 0x8000004d
Extern 1.10.91.0 10.8.1.2 0x80000041
Extern 1.1.247.0 10.5.1.2 0x8000003f
Extern 1.4.110.0 10.6.1.2 0x80000041
Router 10.5.1.18 10.5.1.18 0x8000005f
Network 10.5.5.2 10.5.1.18 0x80000033
Summary 10.8.59.0 172.25.27.82 0x8000003a

show ospf3 neighbor user@host> show ospf3 neighbor detail
detail
ID Interface State Pri Dead
10.255.71.13 fe-0/0/2.0 Full 128 30
Neighbor-address fe80::290:69ff:fe9b:e002
area 0.0.0.0, opt 0x13, OSPF3-Intf-Index 2
DR-ID 10.255.71.13, BDR-ID 10.255.71.12
Up 02:51:43, adjacent 02:51:43

show ospf neighbor user@host >show ospf neighbor area 1.1.1.1
area area-id Address Interface State ID Pri Dead
192.168.37.47 so-0/0/0.0 Full 10.255.245.4 128 33
Area 1.1.1.1
192.168.37.55 so-1/0/0.0 Full 10.255.245.5 128 37
Area 1.1.1.1

show ospf neighbor user@host >show ospf neighbor interface so-0/0/0.0
interface interface-name Address Interface State ID Pri Dead
192.168.37.47 so-0/0/0.0 Full 10.255.245.4 128 37
Area 0.0.0.0
192.168.37.47 so-0/0/0.0 Full 10.255.245.4 128 33
Area 1.1.1.1
192.168.37.47 so-0/0/0.0 Full 10.255.245.4 128 32
Area 2.2.2.2

show ospf3 neighbor user @host > show ospf3 neighbor instance all
instance all (OSPFv3 Instance: ina
Multiple Family Realm: ipv6-unicast
Address Support ID Interface State Pri Dead
Enabled) 100.1.1.1 fe-0/0/2.0 Full 128 37
Neighbor-address fe80::217:cb00:c87c:8c03
Instance: inb
Realm: ipv4-unicast

```

ID	Interface	State	Pri	Dead
100.1.2.1	fe-0/0/2.1	Full	128	33
Neighbor-address fe80::217:cb00:c97c:8c03				

show (ospf | ospf3) overview

Syntax	show (ospf ospf3) overview <brief extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)>
Syntax (EX Series Switch)	show (ospf ospf3) overview <brief extensive> <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. realm option introduced in Junos OS Release 9.2. Database protection introduced in Junos 10.2.
Description	Display Open Shortest Path First (OSPF) overview information.
Options	none—Display standard information about all OSPF neighbors for all routing instances. brief extensive—(Optional) Display the specified level of output. instance <i>instance-name</i> —(Optional) Display all OSPF interfaces under the named routing instance. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(Optional) (OSPFv3 only) Display information about the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.
Required Privilege Level	view
List of Sample Output	show ospf overview on page 371 show ospf overview (with Database Protection) on page 371 show ospf3 overview (with database protection) on page 372 show ospf overview extensive on page 372
Output Fields	Table 105 on page 369 lists the output fields for the show ospf overview command. Output fields are listed in the approximate order in which they appear.

Table 105: show ospf overview Output Fields

Field name	Field Description	Level of Output
Instance	OSPF routing instance.	All levels
Router ID	Router ID of the routing device.	All levels

Table 105: show ospf overview Output Fields (*continued*)

Field name	Field Description	Level of Output
Route table index	Route table index.	All levels
Configured overload	Overload capability is enabled. If the overload timer is also configured, display the time that remains before it is set to expire. This field is not displayed after the timer expires.	All levels
Full SPF runs	Number of complete Shortest Path First calculations.	All levels
SPF delay	Delay before performing consecutive Shortest Path First calculations.	All levels
SPF holddown	Delay before performing additional Shortest Path First (SPF) calculations after the maximum number of consecutive SPF calculations is reached.	All levels
SPF rapid runs	Maximum number of Shortest Path First calculations that can be performed in succession before the holddown timer begins.	All levels
LSA refresh time	Refresh period for link-state advertisement (in minutes).	All levels
Database protection state	Current state of database protection.	All levels
Warning threshold	Threshold at which a warning message is logged (percentage of maximum LSA count).	All levels
Non self-generated LSAs	Number of LSAs whose router ID is not equal to the local router ID: Current , Warning (threshold), and Allowed .	All levels
Ignore time	How long the database has been in the ignore state.	All levels
Reset time	How long the database must stay out of the ignore or isolated state before it returns to normal operations.	All levels
Ignore count	Number of times the database has been in the ignore state: Current and Allowed .	All levels
Restart	Graceful restart capability: enabled or disabled .	All levels
Restart duration	Time period for complete reacquisition of OSPF neighbors.	All levels
Restart grace period	Time period for which the neighbors should consider the restarting routing device as part of the topology.	All levels
Helper mode	Graceful restart helper capability: enabled or disabled .	All levels
Trace options	OSPF-specific trace options.	extensive
Trace file	Name of the file to receive the output of the tracing operation.	extensive
Area	Area number. Area 0.0.0.0 is the backbone area.	All levels

Table 105: show ospf overview Output Fields (*continued*)

Field name	Field Description	Level of Output
Stub type	Stub type of area: Normal Stub , Not Stub , or Not so Stubby Stub .	All levels
Authentication Type	Type of authentication: None , Password , or MD5 .	All levels
Area border routers	Number of area border routers.	All levels
Neighbors	Number of autonomous system boundary routers.	All levels

```

show ospf overview  user@host> show ospf overview
Instance: master
  Router ID: 10.255.245.6
  Route table index: 0
  Configured overload, expires in 118 seconds
  LSA refresh time: 50 minutes
Restart: Enabled
  Restart duration: 20 sec
  Restart grace period: 40 sec
  Helper mode: enabled
Area: 0.0.0.0
  Stub type: Not Stub
  Authentication Type: None
  Area border routers: 0, AS boundary routers: 0
  Neighbors
    Up (in full state): 0
  Topology: default (ID 0)
  Prefix export count: 0
  Full SPF runs: 1
  SPF delay: 0.200000 sec, SPF holddown: 5 sec, SPF rapid runs: 3

```

```

show ospf overview  user@host> show ospf overview
(with Database      Instance: master
Protection)        Router ID: 10.255.112.218
  Route table index: 0
  LSA refresh time: 50 minutes
  Traffic engineering
Restart: Enabled
  Restart duration: 180 sec
  Restart grace period: 210 sec
  Helper mode: Enabled
Database protection state: Normal
  Warning threshold: 70 percent
  Non self-generated LSAs: Current 582, Warning 700, Allowed 1000
  Ignore time: 30, Reset time: 60
  Ignore count: Current 0, Allowed 1
Area: 0.0.0.0
  Stub type: Not Stub
  Authentication Type: None
  Area border routers: 0, AS boundary routers: 0
  Neighbors
    Up (in full state): 160
  Topology: default (ID 0)
  Prefix export count: 0

```

```
Full SPF runs: 70
SPF delay: 0.200000 sec, SPF holddown: 5 sec, SPF rapid runs: 3
Backup SPF: Not Needed
```

show ospf3 overview
(with database
protection)

```
user@host> show ospf3 overview
Instance: master
Router ID: 10.255.112.128
Route table index: 0
LSA refresh time: 50 minutes
Database protection state: Normal
Warning threshold: 80 percent
Non self-generated LSAs: Current 3, Warning 8, Allowed 10
Ignore time: 30, Reset time: 60
Ignore count: Current 0, Allowed 2
Area: 0.0.0.0
Stub type: Not Stub
Area border routers: 0, AS boundary routers: 0
Neighbors
Up (in full state): 1
Topology: default (ID 0)
Prefix export count: 0
Full SPF runs: 7
SPF delay: 0.200000 sec, SPF holddown: 5 sec, SPF rapid runs: 3
Backup SPF: Not Needed
```

show ospf overview
extensive

```
user@host> show ospf overview extensive
Instance: master
Router ID: 1.1.1.103
Route table index: 0
Full SPF runs: 13, SPF delay: 0.200000 sec
LSA refresh time: 50 minutes
Restart: Disabled
Trace options: lsa
Trace file: /var/log/ospf size 131072 files 10
Area: 0.0.0.0
Stub type: Not Stub
Authentication Type: None
Area border routers: 0, AS boundary routers: 0
Neighbors
Up (in full state): 1
```

show (ospf | ospf3) route

Syntax	<pre>show (ospf ospf3) route <brief detail extensive> <abr asbr extern inter intra> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <network> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)> <router> <topology <i>topology-name</i>> <transit></pre>
Syntax (EX Series Switch)	<pre>show (ospf ospf3) route <brief detail extensive> <abr asbr extern inter intra> <instance <i>instance-name</i>> <network> <router> <topology <i>topology-name</i>> <transit></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>topology option introduced in Junos OS Release 9.0.</p> <p>realm option introduced in Junos OS Release 9.2.</p>
Description	Display the entries in the Open Shortest Path First (OSPF) routing table.
Options	<p>none—Display standard information about all entries in the OSPF routing table for all routing instances and all topologies.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>abr—(Optional) Display routes to area border routers.</p> <p>asbr—(Optional) Display routes to autonomous system border routers.</p> <p>extern—(Optional) Display external routes.</p> <p>inter—(Optional) Display interarea routes.</p> <p>intra—(Optional) Display intra-area routes.</p> <p>instance <i>instance-name</i>—(Optional) Display entries for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>network—(Optional) Display routes to networks.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(OSPFv3 only) (Optional) Display entries in the routing table for the specified OSPFv3 realm, or address family. Use</p>

the **realm** option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.

router—(Optional) Display routes to all routers.

topology *topology-name*—(OSPF only) (Optional) Display routes for a particular topology.

transit—(Optional) (OSPFv3 only) Display OSPFv3 routes to pseudonodes.

Required Privilege Level

view

List of Sample Output

show ospf route on page 375
show ospf route detail on page 375
show ospf3 route on page 376
show ospf3 route detail on page 376
show ospf route topology voice on page 377

Output Fields

Table 106 on page 374 list the output fields for the **show (ospf | ospf3) route** command. Output fields are listed in the approximate order in which they appear.

Table 106: show (ospf | ospf3) route Output Fields

Field Name	Field Description	Output Level
Topology	Name of the topology.	All levels
Prefix	Destination of the route.	All levels
Path type	How the route was learned: <ul style="list-style-type: none"> Inter—Interarea route Ext1—External type 1 route Ext2—External type 2 route Intra—Intra-area route 	All levels
Route type	The type of routing device from which the route was learned: <ul style="list-style-type: none"> AS BR—Route to AS border router Area BR—Route to area border router Area/AS BR—Route to router that is both an Area BR and AS BR. Network—Network router. Router—Route to a router that is neither an Area BR nor an AS BR. Transit—(OSPFv3 only) Route to a pseudonode representing a transit network, LAN, or nonbroadcast multiaccess (NBMA) link. Discard—Route to a summary discard. 	All levels
NH Type	Next-hop type: LSP or IP .	All levels
Metric	Route's metric value.	All levels
NH-interface	(OSPFv3 only) Interface through which the route's next hop is reachable.	All levels

Table 106: show (ospf | ospf3) route Output Fields (*continued*)

Field Name	Field Description	Output Level
NH-addr	(OSPFv3 only) IPv6 address of the next hop.	All levels
NextHop Interface	(OSPFv2 only) Interface through which the route's next hop is reachable.	All levels
Nexthop addr/label	(OSPFv2 only) If the NH Type is IP , then it is the address of the next hop. If the NH Type is LSP , then it is the name of the label-switched path.	All levels
Area	Area ID of the route.	detail
Origin	Router from which the route was learned.	detail
Type 7	Route was learned through a not-so-stubby area (NSSA) link-state advertisement (LSA).	detail
P-bit	Route was learned through NSSA LSA and the propagate bit was set.	detail
Fwd NZ	Forwarding address is nonzero. Fwd NZ is only displayed if the route is learned through an NSSA LSA.	detail
optional-capability	Optional capabilities propagated in the router LSA. This field is in the output for intraarea router routes only (when Route Type is Area BR , AS BR , Area/AS BR , or Router), not for interarea router routes or network routes. Three bits in this field are defined as follows: <ul style="list-style-type: none"> • 0x4 (V)—Routing device is at the end of a virtual active link. • 0x2 (E)—Routing device is an autonomous system boundary router. • 0x1 (B)—Routing device is an area border router. 	detail
priority	The priority assigned to the prefix: <ul style="list-style-type: none"> • high • medium • low <p>NOTE: The priority field applies only to routes of type Network.</p>	detail

show ospf route

user@host> show ospf route

```

Prefix          Path  Route  NH  Metric  NextHop  Nexthop
                Type Type   Type Type      Interface
addr/label
10.255.71.12     Intra Router   IP   1      fe-0/0/2.0  192.16.22.86
10.255.71.13/32  Intra Network IP   0      100.0
192.168.222.84/30 Intra Network LSP  1      fe-0/0/2.0  lsp-ab

```

show ospf route detail

user@host> show ospf route detail

Topology default Route Table:

```

Prefix          Path  Route  NH  Metric  NextHop  Nexthop
                Type Type   Type Type      Interface  addr/

```

```

label
10.255.14.174      Inter AS BR      IP      210  t1-3/0/1.0
  area 0.0.0.2, origin 10.255.14.185
10.255.14.178      Intra Router    IP      200  t3-3/1/3.0
  area 0.0.0.2, origin 10.255.14.178, optional-capability 0x0
10.210.1.0/30       Intra Network  IP      10   t3-3/1/2.0
  area 0.0.0.2, origin 10.255.14.172, priority medium
100.1.1.1/32        Inter Network  IP      210  t1-3/0/1.0
  area 0.0.0.2, origin 10.255.14.185, priority low
112.3.1.0/24        Ext2  Network  IP      0   t1-3/0/1.0
  area 0.0.0.0, origin 10.255.14.174, priority high
200.3.3.0/30        Inter Network  IP      220  t1-3/0/1.0
  area 0.0.0.2, origin 10.255.14.185, priority high

```

show ospf3 route

```
user@host> show ospf3 route
```

```

Prefix                                     Path   Route   NH   Metric
                                     type   type
10.255.71.13                             Intra Router IP    1
  NH-interface fe-0/0/2.0, NH-addr fe80::290:69ff:fe9b:e002
10.255.71.13;0.0.0.2                     Prefix   Path   Route   NH
Metric NextHop                        Nexthop
                                     Type   Type   Type   Interface   addr/label
10.255.245.1                             Intra Router IP      40  fxp1.1      192.168.36.17
  area 0.0.0.0, origin 10.255.245.1 optional-capability 0x0,
10.255.245.3                             Intra AS BR  IP      1  fxp2.3      192.168.36.34
  area 0.0.0.0, origin 10.255.245.3 optional-capability 0x0,
10.255.245.1/32                          Intra Network IP      40  fxp1.1      192.168.36.17
  area 0.0.0.0, origin 10.255.245.1, priority high
10.255.245.2/32                          Intra Network IP      0   lo0.0
  area 0.0.0.0, origin 10.255.245.2, priority medium
10.255.245.3/32                          Intra Network IP      1  fxp2.3      192.168.36.34
  area 0.0.0.0, origin 10.255.245.3, priority low

                                     Intra Transit IP    1
  NH-interface fe-0/0/2.0
192::168:222:84/126                     Intra Network IP    1
  NH-interface fe-0/0/2.0
abcd::71:12/128                         Intra Network IP    0
  NH-interface lo0.0
abcd::71:13/128                         Intra Network LSP   1
  NH-interface fe-0/0/2.0, NH-addr lsp-cd

```

show ospf3 route detail

```
user@host> show ospf3 route detail
```

```

Prefix                                     Path   Route   NH
Metric                                     type   type
10.255.14.174                             Intra Area/AS BR IP    110
  NH-interface so-1/2/2.0
  Area 0.0.0.0, Origin 10.255.14.174, Optional-capability 0x3
10.255.14.178                             Intra Router IP    200
  NH-interface t3-3/1/3.0
  Area 0.0.0.0, Origin 10.255.14.178, Optional-capability 0x0
10.255.14.185;0.0.0.2                     Intra Transit IP    200
  NH-interface t1-3/0/1.0
  NH-interface so-1/2/2.0
  Area 0.0.0.0, Origin 10.255.14.185
1000:1:1::1/128                         Inter Network IP    110
  NH-interface so-1/2/2.0
  Area 0.0.0.0, Origin 10.255.14.174, Priority low
1001:2:1::/48                           Ext1  Network IP    110
  NH-interface so-1/2/2.0

```

```

Area 0.0.0.0, Origin 10.255.14.174, Fwd NZ, Priority medium
1002:1:7::/48                               Ext2   Network   IP    0
NH-interface so-1/2/2.0
Area 0.0.0.0, Origin 10.255.14.174, Fwd NZ, Priority low
1002:3:4::/48                               Ext2   Network   IP    0
NH-interface so-1/2/2.0
Area 0.0.0.0, Origin 10.255.14.174, Fwd NZ, Priority high
abcd::10:255:14:172/128                     Intra   Network   IP    0
NH-interface lo0.0
Area 0.0.0.0, Origin 10.255.14.172, Priority low

```

show ospf route user@host show ospf route topology voice

topology voice

Topology voice Route Table:

Prefix	Path Type	Route Type	NH Type	Metric	NextHop Interface	Nexthop addr/label
10.255.8.2	Intra	Router	IP	1	so-0/2/0.0	
10.255.8.3	Intra	Router	IP	2	so-0/2/0.0	
10.255.8.1/32	Intra	Network	IP	0	lo0.0	
10.255.8.2/32	Intra	Network	IP	1	so-0/2/0.0	
10.255.8.3/32	Intra	Network	IP	2	so-0/2/0.0	
192.168.8.0/29	Intra	Network	IP	2	so-0/2/0.0	
192.168.8.44/30	Intra	Network	IP	2	so-0/2/0.0	
192.168.8.46/32	Intra	Network	IP	1	so-0/2/0.0	
192.168.8.48/30	Intra	Network	IP	1	so-0/2/1.0	
192.168.8.52/30	Intra	Network	IP	2	so-0/2/0.0	
192.168.9.44/30	Intra	Network	IP	1	so-0/2/0.0	
192.168.9.45/32	Intra	Network	IP	2	so-0/2/0.0	

show (ospf | ospf3) statistics

Syntax	show (ospf ospf3) statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <realm (ipv4-multicast ipv4-unicast ipv6-multicast)>
Syntax (EX Series Switch)	show (ospf ospf3) statistics <instance <i>instance-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. realm option introduced in Junos OS Release 9.2.
Description	Display OSPF statistics.
Options	<p>none—Display OSPF statistics for all routing instances.</p> <p>instance <i>instance-name</i>—(Optional) Display all statistics for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>realm (ipv4-multicast ipv4-unicast ipv6-multicast)—(Optional) (OSPFv3 only) Display all statistics for the specified OSPFv3 realm, or address family. Use the realm option to specify an address family for OSPFv3 other than IPv6 unicast, which is the default.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear (ospf ospf3) statistics on page 323
List of Sample Output	show ospf statistics on page 379
Output Fields	Table 107 on page 378 lists the output fields for the show (ospf ospf3) statistics command. Output fields are listed in the approximate order in which they appear.

Table 107: show (ospf | ospf3) statistics Output Fields

Field Name	Field Description
Packet type	Type of OSPF packet.
Total Sent/Total Received	Total number of packets sent and received.
Last 5 seconds Sent/Last 5 seconds Received	Total number of packets sent and received in the last 5 seconds.
LSAs retransmitted	Total number of link-state advertisements transmitted, and number retransmitted in the last 5 seconds.

Table 107: show (ospf | ospf3) statistics Output Fields (*continued*)

Field Name	Field Description
Receive errors	Number and type of receive errors.

show ospf statistics

```

user@host> show ospf statistics
Packet type      Total
                  Sent      Received
Hello            505739    990495
  DbD              20         26
  LSReq            6          5
LSUpdate         27060    15319
  LSAck           10923    52470

Last 5 seconds
Sent      Received
4          5
0          0
0          0
0          0
0          0

LSAs retransmitted: 16, last 5 seconds: 0

Receive errors:
  862 no interface found
 115923 no virtual link found

```


Protocol-Independent Routing Operational Mode Commands

Table 108 on page 381 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot protocol-independent routing properties. Commands are listed in alphabetical order.



NOTE: The `show route` command has a lengthy set of options. Therefore, this chapter describes each option as a separate command. You can, however, combine several options and issue them as single `show route` command. For example, `show route ccc exact`.

The exceptions to this convention are the `show as-path`, `show route damping`, `show route export`, `show route export-vrf-target`, `show route forwarding-table`, `show route instance`, and `show route martians` commands, which cannot be used with any other options (other than level of output options, such as `detail` and `extensive`).

The `show route flow validation` command can only be used with the `table` option.

Table 108: Protocol-Independent Routing Operational Mode Commands

Task	Command
Display known autonomous system (AS) paths.	<code>show as-path</code>
Display AS path domain information.	<code>show as-path domain</code>
Display AS path summary information.	<code>show as-path summary</code>
Display information about the entries in the routing tables.	<code>show route</code>
Display routes that are currently active.	<code>show route active-path</code>
Display routes transmitted by a particular routing protocol.	<code>show route advertising-protocol</code>
Display all information about all routes.	<code>show route all</code>

Table 108: Protocol-Independent Routing Operational Mode Commands (*continued*)

Task	Command
Display routes containing a specified AS path.	show route aspath-regex
Display the best route to the specified address or range of addresses.	show route best
Display brief information about the entries in the routing table.	show route brief
Display circuit cross-connect (CCC) entries in the Multiprotocol Link Switching (MPLS) routing table.	show route ccc
Display routes containing members of a specified BGP community.	show route community
Display routes containing members of a specified BGP community based on a particular community name.	show route community-name
Display routes that have been damped.	show route damping
Display detailed information about the entries in the routing table.	show route detail
Display routes that exactly match the specified address or range of addresses.	show route exact
Display list of instances or routing tables that are importers or exporters of routes.	show route export
Display target communities for which autoexport is currently distributing routes.	show route export vrf-target
Display extensive information about the entries in the routing table.	show route extensive
Display the best route to an address.	show route flow validation
Display the Junos forwarding table.	show route forwarding-table
Display hidden routes only.	show route hidden
Display routes that are not preferred.	show route inactive-path
Display routes that are currently inactive.	show route inactive-prefix
Display routing instance information.	show route instance
Display routes corresponding to a specified label value.	show route label

Table 108: Protocol-Independent Routing Operational Mode Commands (*continued*)

Task	Command
Display routes that form a label-switched path.	show route label-switched-path
Display information about martian addresses.	show route martians
Display routes that contain the specified next hop.	show route next-hop
Display routes not associated with any BGP community.	show route no-community
Display routes exiting the router through the specified interface.	show route output
Display routes learned by the specified protocol.	show route protocol
Display routes in a range of destination prefixes.	show route range
Display routes received by a particular routing protocol.	show route receive-protocol
Display entries in the next-hop resolution database.	show route resolution
Display routes learned from snooping.	show route snooping
Display routes learned from the specified source.	show route source-gateway
Display statistics about the routes in all routing tables.	show route summary
Display routes in a particular routing table.	show route table
Display high-level summary of routing table information.	show route terse



NOTE: For information about how to configure protocol-independent features, see the *Junos Routing Protocols Configuration Guide* and the *Junos Policy Framework Configuration Guide*.

show as-path

Syntax	show as-path <brief detail> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show as-path <brief detail>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the distribution of autonomous system (AS) paths that the local routing device is using (usually through the routing table). Use this command to debug problems for AS paths and to understand how AS paths have been manipulated through a policy (through the as-path-prepend action) or through aggregation.
Options	<p>none—Display basic information about AS paths that the local routing device is using (same as brief).</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show as-path on page 385</p> <p>show as-path detail on page 386</p>
Output Fields	Table 109 on page 384 lists the output fields for the show as-path command. Output fields are listed in the approximate order in which they appear.

Table 109: show as-path Output Fields

Field Name	Field Description	Level of Output
Total AS paths	Total number of AS paths.	brief none
Bucket	Bucket value. This value represents a traffic classification on the interface.	All levels
Count	Path reference count.	All levels

Table 109: show as-path Output Fields (*continued*)

Field Name	Field Description	Level of Output
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path originated:</p> <ul style="list-style-type: none"> • I—IGP. • E—EGP. • ?—Incomplete; typically, the AS path was aggregated. • Atomic—Route is an aggregate of several route prefixes. • Aggregator—Routing device has summarized a range of prefixes. 	All levels
domain	Number of independent AS domains. The AS paths of an independent AS domain are not shared with the AS paths and AS path attributes of other domains, including the master routing instance domain.	detail
neighbor as	AS peer address.	detail
length	Length of the AS path.	detail
segments	Length of the AS segment descriptor.	detail
references	Path reference count.	detail

```

show as-path user@host> show as-path
Total AS paths: 30382
Bucket 0      Count: 36
I
14203 2914 174 31752 I
14203 2914 701 21512 I
14203 2914 1239 26632 I
14203 2914 1239 29704 I
14203 2914 4323 10248 I
14203 2914 4766 23560 I
14203 2914 6395 32776 I
14203 2914 7911 11272 I
14203 2914 12180 18440 I
14203 2914 17408 17416 I
14203 2914 701 702 24586 I
14203 2914 1239 4657 9226 I
14203 2914 1239 7132 16394 I
14203 2914 1299 8308 34826 I
14203 2914 3320 5603 28682 I
14203 2914 3491 1680 33802 I
14203 2914 3549 7908 27658 I
14203 2914 3549 20804 30730 I
14203 2914 7018 2687 9226 I
14203 2914 174 9318 9318 23564 I
14203 2914 701 3786 3786 23564 I
14203 2914 701 4761 4795 9228 I
14203 2914 1239 7132 5673 18444 I
14203 2914 3491 20485 24588 24588 I
14203 2914 5511 2200 1945 2060 I
14203 2914 7911 14325 14325 14348 I

```

```

14203 2914 701 4637 9230 9230 9230 I
14203 2914 6395 14 14 14 14 I
14203 2914 9299 6163 6163 6163 6163 9232 I
14203 2914 3356 3356 3356 3356 3356 11955 21522 I
14203 2914 9837 9837 9219 I Aggregator: 9219 202.27.91.253
14203 2914 174 30209 30222 30222 30222 ?
14203 2914 1299 5377 I (Atomic) Aggregator: 5377 193.219.192.22
14203 2914 4323 36097 I (Atomic) Aggregator: 36097 216.69.252.254
14203 2914 209 2516 17676 23813 I (Atomic) Aggregator: 23813 219.127.233.66
Bucket 1    Count: 28
14203 2914 35847 I
14203 2914 174 19465 I
14203 2914 174 35849 I
14203 2914 2828 32777 I
14203 2914 4323 14345 I
14203 2914 4323 29705 I
14203 2914 6395 32777 I
...

```

show as-path detail

```

user@host> show as-path detail
Total AS paths: 30410
Bucket 0    Count: 36
AS path: I
  domain 0, length 0, segments 0, references 54
AS path: 14203 2914 174 31752 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 701 21512 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 1239 26632 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 1239 29704 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 4323 10248 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 4766 23560 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 6395 32776 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 3
AS path: 14203 2914 7911 11272 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 2
AS path: 14203 2914 12180 18440 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 3
AS path: 14203 2914 17408 17416 I
  domain 1, neighbor as: 14203, length 4, segments 1, references 3
AS path: 14203 2914 701 702 24586 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 3
AS path: 14203 2914 1239 4657 9226 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 7
AS path: 14203 2914 1239 7132 16394 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2
AS path: 14203 2914 1299 8308 34826 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2
AS path: 14203 2914 3320 5603 28682 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2
AS path: 14203 2914 3491 1680 33802 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2
AS path: 14203 2914 3549 7908 27658 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2
AS path: 14203 2914 3549 20804 30730 I
  domain 1, neighbor as: 14203, length 5, segments 1, references 2

```



```
AS path: 14203 2914 7018 2687 9226 I
    domain 1, neighbor as: 14203, length 5, segments 1, references 3
AS path: 14203 2914 174 9318 9318 23564 I
    domain 1, neighbor as: 14203, length 6, segments 1, references 2
AS path: 14203 2914 701 3786 3786 23564 I
    domain 1, neighbor as: 14203, length 6, segments 1, references 2
AS path: 14203 2914 701 4761 4795 9228 I
    domain 1, neighbor as: 14203, length 6, segments 1, references 14
AS path: 14203 2914 1239 7132 5673 18444 I
    domain 1, neighbor as: 14203, length 6, segments 1, references 2
AS path: 14203 2914 3491 20485 24588 24588 I
    domain 1, neighbor as: 14203, length 6, segments 1, references 4
AS path: 14203 2914 5511 2200 1945 2060 I
    domain 1, neighbor as: 14203, length 6, segments 1, references 2
AS path: 14203 2914 7911 14325 14325 14348 I
    domain 1, neighbor as: 14203, length 6, segments 1, references 2
AS path: 14203 2914 701 4637 9230 9230 9230 I
    domain 1, neighbor as: 14203, length 7, segments 1, references 3
AS path: 14203 2914 6395 14 14 14 14 I
    domain 1, neighbor as: 14203, length 7, segments 1, references 10
...
```

show as-path domain

Syntax	show as-path domain <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show as-path domain
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display autonomous system (AS) path domain information.
Options	none—(Optional) Display AS path domain information for all routing instances. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show as-path domain on page 389
Output Fields	Table 110 on page 388 lists the output fields for the show as-path domain command. Output fields are listed in the approximate order in which they appear

Table 110: show as-path domain Output Fields

Field Name	Field Description
Domain	Number of independent AS domains. The AS paths of an independent AS domain are not shared with the AS paths and AS path attributes of other domains, including the master routing instance domain.
Primary	Primary AS number.
References	Path reference count.
Number Paths	Number of known AS paths.
Flags	Information about the AS path: <ul style="list-style-type: none"> • ASLoop—Path contains an AS loop. • Atomic—Path includes the ATOMIC_AGGREGATE path attribute. • Local—Path was created by local aggregation. • Master—Path was created by the master routing instance.
Local AS	AS number of the local routing device.
Loops	How many times this AS number can appear in an AS path.

```
show as-path domain  user@host> show as-path domain
Domain: 1              Primary: 10458
References:            3 Paths:      30383
Flags: Master
Local AS: 10458  Loops: 1
```

show as-path summary

Syntax	show as-path summary <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show as-path summary
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display autonomous system (AS) path summary information.
Options	none—(Optional) Display AS path summary information for all routing instances. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show as-path summary on page 390
Output Fields	Table 111 on page 390 lists the output fields for the show as-path summary command. Output fields are listed in the approximate order in which they appear.

Table 111: show as-path summary Output Fields

Field Name	Field Description
AS Path	AS path number.
Buckets	Bucket value. This value represents a traffic classification on the interface.
Max	Maximum limit for the number of AS numbers.
Min	Minimum limit for the number of AS numbers.
Avg	Average number of AS numbers.
Std deviation	Standard deviation for the number of AS numbers.

```

show as-path summary user@host> show as-path summary
AS Paths Buckets Max Min Avg Std deviation
30425 1024 95 12 29 6.481419

```

show route

Syntax	show route <all> <destination-prefix> <logical-system (all <i>logical-system-name</i>)> <private>
Syntax (EX Series Switch)	show route <all> <destination-prefix> <private>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. private option introduced in Junos OS Release 9.5. private option introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display the active entries in the routing tables.
Options	<p>none—Display brief information about all active entries in the routing tables.</p> <p>all—(Optional) Display information about all routing tables, including private, or internal, routing tables.</p> <p>destination-prefix—(Optional) Display active entries for the specified address or range of addresses.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>private—(Optional) Display information only about all private, or internal, routing tables.</p>
Required Privilege Level	view
List of Sample Output	<p>show route on page 394</p> <p>show route destination-prefix on page 394</p>
Output Fields	Table 112 on page 391 describes the output fields for the show route command. Output fields are listed in the approximate order in which they appear.

Table 112: show route Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.

Table 112: show route Output Fields (*continued*)

Field Name	Field Description
<i>number routes</i>	<p>Number of routes in the routing table and total number of routes in the following states:</p> <ul style="list-style-type: none"> • active (routes that are active). • holddown (routes that are in the pending state before being declared inactive). • hidden (routes that are not used because of a routing policy).
<i>destination-prefix</i>	<p>Route destination (for example:10.0.0.1/24). Sometimes the route information is presented in another format, such as:</p> <ul style="list-style-type: none"> • MPLS-label (for example, 80001). • interface-name (for example, ge-1/0/2). • neighbor-address:control-word-status:encapsulation type:vc-id:source (Layer 2 circuit only; for example, 10.1.1.195:NoCtrlWord:1:1:Local/96): <ul style="list-style-type: none"> • neighbor-address—Address of the neighbor. • control-word-status—Whether the use of the control word has been negotiated for this virtual circuit: NoCtrlWord or CtrlWord. • encapsulation type—Type of encapsulation, represented by a number: (1) Frame Relay DLCI, (2) ATM AAL5 VCC transport, (3) ATM transparent cell transport, (4) Ethernet, (5) VLAN Ethernet, (6) HDLC, (7) PPP, (8) ATM VCC cell transport, (10) ATM VPC cell transport. • vc-id—Virtual circuit identifier. • source—Source of the advertisement: Local or Remote.
[<i>protocol, preference</i>]	<p>Protocol from which the route was learned and the preference value for the route.</p> <ul style="list-style-type: none"> • +—A plus sign indicates the active route, which is the route installed from the routing table into the forwarding table. • -—A hyphen indicates the last active route. • *—An asterisk indicates that the route is both the active and the last active route. An asterisk before a to line indicates the best subpath to the route. <p>In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, Junos OS stores the 1's complement of the LocalPref value in the Preference2 field. For example, if the LocalPref value for Route 1 is 100, the Preference2 value is -101. If the LocalPref value for Route 2 is 155, the Preference2 value is -156. Route 2 is preferred because it has a higher LocalPref value and a lower Preference2 value.</p>
<i>weeks:days hours:minutes:seconds</i>	How long the route been known (for example, 2w4d 13:11:14, or 2 weeks, 4 days, 13 hours, 11 minutes and 14 seconds).
<i>metric</i>	Cost value of the indicated route. For routes within an AS, the cost is determined by IGP and the individual protocol metrics. For external routes, destinations, or routing domains, the cost is determined by a preference value.
<i>localpref</i>	Local preference value included in the route.
<i>from</i>	Interface from which the route was received.

Table 112: show route Output Fields (*continued*)

Field Name	Field Description
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path originated:</p> <ul style="list-style-type: none"> • I—IGP. • E—EGP. • ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> • []—Brackets enclose the local AS number associated with the AS path if more than one AS number is configured on the routing device, or if AS path prepending is configured. • { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. • ()—Parentheses enclose a confederation. • ([])—Parentheses and brackets enclose a confederation set. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>
to	Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.
via	<p>Interface used to reach the next hop. If there is more than one interface available to the next hop, the interface that is actually used is followed by the word Selected. This field can also contain the following information:</p> <ul style="list-style-type: none"> • Weight—Value used to distinguish primary, secondary, and fast reroute backup routes. Weight information is available when Multiprotocol Label Switching (MPLS) label-switched path (LSP) link protection, node-link protection, or fast reroute is enabled, or when the standby state is enabled for secondary paths. A lower weight value is preferred. Among routes with the same weight value, load balancing is possible. • Balance—Balance coefficient indicating how traffic of unequal cost is distributed among next hops when a routing device is performing unequal-cost load balancing. This information is available when you enable Border Gateway Protocol (BGP) multipath load balancing. • lsp-path-name—Name of the label-switched path (LSP) used to reach the next hop. • label-action—MPLS label and operation occurring at the next hop. The operation can be pop (where a label is removed from the top of the stack), push (where another label is added to the label stack), or swap (where a label is replaced by another label).

```

show route      user@host> show route
inet.0: 10 destinations, 10 routes (9 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both
0.0.0.0/0          *[Static/5] 1w5d 20:30:29
                   Discard
10.255.245.51/32   *[Direct/0] 2w4d 13:11:14
                   > via lo0.0
172.16.0.0/12      *[Static/5] 2w4d 13:11:14
                   > to 192.168.167.254 via fxp0.0
192.168.0.0/18     *[Static/5] 1w5d 20:30:29
                   > to 192.168.167.254 via fxp0.0
192.168.40.0/22    *[Static/5] 2w4d 13:11:14
                   > to 192.168.167.254 via fxp0.0
192.168.64.0/18    *[Static/5] 2w4d 13:11:14
                   > to 192.168.167.254 via fxp0.0
192.168.164.0/22   *[Direct/0] 2w4d 13:11:14
                   > via fxp0.0
192.168.164.51/32  *[Local/0] 2w4d 13:11:14
                   Local via fxp0.0
207.17.136.192/32 *[Static/5] 2w4d 13:11:14
                   > to 192.168.167.254 via fxp0.0

green.inet.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
100.101.0.0/16     *[Direct/0] 1w5d 20:30:28
                   > via fe-0/0/3.0
100.101.2.3/32     *[Local/0] 1w5d 20:30:28
                   Local via fe-0/0/3.0
224.0.0.5/32       *[OSPF/10] 1w5d 20:30:29, metric 1
                   MultiRecv

red.inet.0: 11 destinations, 11 routes (11 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
10.10.10.10/32     *[Direct/0] 01:08:46
                   > via lo0.1
10.255.245.212/32  *[BGP/170] 00:01:40, localpref 100, from 10.255.245.204
                   AS path: 300 I
                   > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix
10.255.245.213/32  *[BGP/170] 00:40:47, localpref 100
                   AS path: 100 I
                   > to 100.1.1.1 via so-0/0/1.0

show route      user@host> show route 172.16.0.0/12
destination-prefix
inet.0: 10 destinations, 10 routes (9 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

172.16.0.0/12      *[Static/5] 2w4d 12:54:27
                   > to 192.168.167.254 via fxp0.0

```


show route active-path

Syntax	show route active-path <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route active-path <brief detail extensive terse>
Release Information	Command introduced in Junos OS Release 8.0. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display all active routes for destinations. An active route is a route that is selected as the best path. Inactive routes are not displayed.
Options	<p>none—Display all active routes.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route active-path on page 395</p> <p>show route active-path brief on page 396</p> <p>show route active-path detail on page 396</p> <p>show route active-path extensive on page 397</p> <p>show route active-path terse on page 398</p>
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail , the show route extensive , or the show route terse .
show route active-path	<pre> user@host> show route active-path inet.0: 7 destinations, 7 routes (6 active, 0 holddown, 1 hidden) + = Active Route, - = Last Active, * = Both 10.255.70.19/32 *[Direct/0] 21:33:52 > via lo0.0 10.255.71.50/32 *[IS-IS/15] 00:18:13, metric 10 > to 100.1.2.1 via so-2/1/3.0 100.1.2.0/24 *[Direct/0] 00:18:36 > via so-2/1/3.0 100.1.2.2/32 *[Local/0] 00:18:41 Local via so-2/1/3.0 192.168.64.0/21 *[Direct/0] 21:33:52 > via fxp0.0 192.168.70.19/32 *[Local/0] 21:33:52 Local via fxp0.0 </pre>

show route active-path brief The output for the **show route active-path brief** command is identical to that for the **show route active-path** command. For sample output, see **show route active-path** on page 395.

```

user@host> show route active-path detail

inet.0: 7 destinations, 7 routes (6 active, 0 holddown, 1 hidden)

10.255.70.19/32 (1 entry, 1 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 3
    Next hop: via lo0.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 21:37:10
    Task: IF
    Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3

    AS path: I

10.255.71.50/32 (1 entry, 1 announced)
  *IS-IS Preference: 15
    Level: 1
    Next hop type: Router, Next hop index: 397
    Next-hop reference count: 4
    Next hop: 100.1.2.1 via so-2/1/3.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 21:31 Metric: 10
    Task: IS-IS
    Announcement bits (4): 0-KRT 2-IS-IS 5-Resolve tree 2 6-Resolve
tree 3
    AS path: I

100.1.2.0/24 (1 entry, 1 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 3
    Next hop: via so-2/1/3.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 21:54
    Task: IF
    Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3

    AS path: I

100.1.2.2/32 (1 entry, 1 announced)
  *Local Preference: 0
    Next hop type: Local
    Next-hop reference count: 11
    Interface: so-2/1/3.0
    State: <Active NoReadvrt Int>
    Local AS: 200
    Age: 21:59
    Task: IF
    Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

192.168.64.0/21 (1 entry, 1 announced)

```

```

*Direct Preference: 0
  Next hop type: Interface
  Next-hop reference count: 3
  Next hop: via fxp0.0, selected
  State: <Active Int>
  Local AS: 200
  Age: 21:37:10
  Task: IF
  Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
  AS path: I

```

```
192.168.70.19/32 (1 entry, 1 announced)
```

```

*Local Preference: 0
  Next hop type: Local
  Next-hop reference count: 11
  Interface: fxp0.0
  State: <Active NoReadvrt Int>
  Local AS: 200
  Age: 21:37:10
  Task: IF
  Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
  AS path: I

```

**show route active-path
extensive**

```
user@host> show route active-path extensive
```

```
inet.0: 7 destinations, 7 routes (6 active, 0 holddown, 1 hidden)
```

```
10.255.70.19/32 (1 entry, 1 announced)
```

```
TSI:
```

```
IS-IS level 1, LSP fragment 0
```

```
IS-IS level 2, LSP fragment 0
```

```

*Direct Preference: 0
  Next hop type: Interface
  Next-hop reference count: 3
  Next hop: via lo0.0, selected
  State: <Active Int>
  Local AS: 200
  Age: 21:39:47
  Task: IF
  Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3
  AS path: I

```

```
10.255.71.50/32 (1 entry, 1 announced)
```

```
TSI:
```

```
KRT in-kernel 10.255.71.50/32 -> {100.1.2.1}
```

```
IS-IS level 2, LSP fragment 0
```

```

*IS-IS Preference: 15
  Level: 1
  Next hop type: Router, Next hop index: 397
  Next-hop reference count: 4
  Next hop: 100.1.2.1 via so-2/1/3.0, selected
  State: <Active Int>
  Local AS: 200
  Age: 24:08      Metric: 10
  Task: IS-IS
  Announcement bits (4): 0-KRT 2-IS-IS 5-Resolve tree 2 6-Resolve
tree 3
  AS path: I

```

```
100.1.2.0/24 (1 entry, 1 announced)
```

```
TSI:
```

```

IS-IS level 1, LSP fragment 0
IS-IS level 2, LSP fragment 0
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 3
    Next hop: via so-2/1/3.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 24:31
    Task: IF
    Announcement bits (3): 2-IS-IS 5-Resolve tree 2 6-Resolve tree 3

    AS path: I

100.1.2.2/32 (1 entry, 1 announced)
  *Local Preference: 0
    Next hop type: Local
    Next-hop reference count: 11
    Interface: so-2/1/3.0
    State: <Active NoReadvrt Int>
    Local AS: 200
    Age: 24:36
    Task: IF
    Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

192.168.64.0/21 (1 entry, 1 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 3
    Next hop: via fxp0.0, selected
    State: <Active Int>
    Local AS: 200
    Age: 21:39:47
    Task: IF
    Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

192.168.70.19/32 (1 entry, 1 announced)
  *Local Preference: 0
    Next hop type: Local
    Next-hop reference count: 11
    Interface: fxp0.0
    State: <Active NoReadvrt Int>
    Local AS: 200
    Age: 21:39:47
    Task: IF
    Announcement bits (2): 5-Resolve tree 2 6-Resolve tree 3
    AS path: I

```

show route active-path terse user@host> show route active-path terse

```

inet.0: 7 destinations, 7 routes (6 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

```

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
*	10.255.70.19/32	D	0			>100.0	
*	10.255.71.50/32	I	15	10		>100.1.2.1	
*	100.1.2.0/24	D	0			>so-2/1/3.0	
*	100.1.2.2/32	L	0			Local	

```
* 192.168.64.0/21    D    0                >fxp0.0
* 192.168.70.19/32   L    0                Local
```

show route advertising-protocol

Syntax	show route advertising-protocol <i>protocol neighbor-address</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display the routing information as it has been prepared for advertisement to a particular neighbor of a particular dynamic routing protocol.
Options	<p><i>protocol</i>—Protocol transmitting the route:</p> <ul style="list-style-type: none"> • bgp—Border Gateway Protocol • dvmrp—Distance Vector Multicast Routing Protocol • msdp—Multicast Source Discovery Protocol • pim—Protocol Independent Multicast • rip—Routing Information Protocol • ripng—Routing Information Protocol next generation <p><i>neighbor-address</i>—Address of the neighboring router to which the route entry is being transmitted.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	Routes displayed are routes that the routing table has exported into the routing protocol and that have been filtered by the associated protocol's export routing policy statements. For more information, see the <i>Junos Routing Protocols Configuration Guide</i> .
Required Privilege Level	view
List of Sample Output	<p>show route advertising-protocol bgp (Layer 3 VPN) on page 402</p> <p>show route advertising-protocol bgp detail on page 403</p> <p>show route advertising-protocol bgp detail (Layer 2 VPN) on page 403</p> <p>show route advertising-protocol bgp detail (Layer 3 VPN) on page 403</p>
Output Fields	Table 113 on page 400 lists the output fields for the show route advertising-protocol command. Output fields are listed in the approximate order in which they appear.

Table 113: show route advertising-protocol Output Fields

Field Name	Field Description	Level of Output
<i>routing-table-name</i>	Name of the routing table—for example, inet.0.	All levels

Table 113: show route advertising-protocol Output Fields (*continued*)

Field Name	Field Description	Level of Output
number destinations	Number of destinations for which there are routes in the routing table.	All levels
number routes	Number of routes in the routing table and total number of routes in the following states: <ul style="list-style-type: none"> • active (routes that are active) • holddown (routes that are in the pending state before being declared inactive) • hidden (the routes are not used because of a routing policy) 	All levels
Prefix	Destination prefix.	brief none
destination-prefix (entry, announced)	Destination prefix. The entry value is the number of routes for this destination, and the announced value is the number of routes being announced for this destination.	detail extensive
BGP group and type	BGP group name and type (Internal or External).	detail extensive
Route Distinguisher	Unique 64-bit prefix augmenting each IP subnet.	detail extensive
Advertised Label	Incoming label advertised by the Label Distribution Protocol (LDP). When an IP packet enters a label-switched path (LSP), the ingress router examines the packet and assigns it a label based on its destination, placing the label in the packet's header. The label transforms the packet from one that is forwarded based on its IP routing information to one that is forwarded based on information associated with the label.	detail extensive
Label-Base, range	First label in a block of labels and label block size. A remote PE router uses this first label when sending traffic toward the advertising PE router.	detail extensive
VPN Label	Virtual private network (VPN) label. Packets are sent between CE and PE routers by advertising VPN labels. VPN labels transit over either a Resource Reservation Protocol (RSVP) or a Label Distribution Protocol (LDP) label-switched path (LSP) tunnel.	detail extensive
Nexthop	Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.	All levels
MED	Multiple exit discriminator value included in the route.	brief
Lclpref or Localpref	Local preference value included in the route.	All levels

Table 113: show route advertising-protocol Output Fields (*continued*)

Field Name	Field Description	Level of Output
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path originated:</p> <ul style="list-style-type: none"> • I—IGP. • E—EGP. • ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> • []—Brackets enclose the local AS number associated with the AS path if configured on the router, or if AS path prepending is configured. • { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. • ()—Parentheses enclose a confederation. • ([])—Parentheses and brackets enclose a confederation set. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>	All levels
Communities	Community path attribute for the route. see the output field table for the show route detail command for all possible values for this field.	detail extensive
Attrset AS	Number, local preference, and path of the autonomous system (AS) that originated the route. These values are stored in the Attrset attribute at the originating router.	detail extensive
Layer2-info: encaps	Layer 2 encapsulation (for example, VPLS).	detail extensive
control flags	Control flags: none or Site Down .	detail extensive
mtu	Maximum transmission unit (MTU) of the Layer 2 circuit.	detail extensive

```

show route advertising-protocol bgp (Layer 3 VPN)
user@host> show route advertising-protocol bgp 10.255.14.171
VPN-A.inet.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
Prefix                Nexthop                MED    Lclpref AS path
10.255.14.172/32      Self                    1       100 I
VPN-B.inet.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
Prefix                Nexthop                MED    Lclpref AS path
10.255.14.181/32      Self                    2       100 I

```



```

show route      user@host> show route advertising-protocol bgp 111.222.1.3 detail
advertising-protocol
bgp detail      bgp20.inet.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
                 111.222.1.11/32 (1 entry, 1 announced)
                 BGP group pe-pe type Internal
                 Route Distinguisher: 111.255.14.11:69
                 Advertised Label: 100000
                 next hop: Self
                 Localpref: 100
                 AS path: 2 I
                 Communities: target:69:20
                 111.8.0.0/16 (1 entry, 1 announced)
                 BGP group pe-pe type Internal
                 Route Distinguisher: 111.255.14.11:69
                 Advertised Label: 100000
                 Next hop: Self
                 Localpref: 100
                 AS path: 2 I
                 Communities: target:69:20

show route      user@host> show route advertising-protocol bgp 192.168.24.1 detail
advertising-protocol
bgp detail (Layer 2
VPN)            vpn-a.12vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
                 192.168.16.1:1:1/96 (1 entry, 1 announced)
                 BGP group int type Internal
                 Route Distinguisher: 192.168.16.1:1
                 Label-base : 32768, range : 3
                 Nexthop: Self
                 Localpref: 100
                 AS path: I
                 Communities: target:65412:100
                 Layer2-info: encaps:VLAN, control flags:, mtu:

show route      user@host> show route advertising-protocol bgp 10.255.14.176 detail
advertising-protocol
bgp detail (Layer 3
VPN)            vpna.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
                 * 10.49.0.0/30 (1 entry, 1 announced)
                 BGP group ibgp type Internal
                 Route Distinguisher: 10.255.14.174:2
                 VPN Label: 101264
                 Nexthop: Self
                 Localpref: 100
                 AS path: I
                 Communities: target:200:100
                 AttrSet AS: 100
                 Localpref: 100
                 AS path: I
                 ...

```

show route all

Syntax	show route all <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route all
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about all routes in all routing tables, including private, or internal, tables.
Options	none—Display information about all routes in all routing tables, including private, or internal, tables. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show route all on page 404
Output Fields	In Junos OS Release 9.5 and later, only the output fields for the show route all command display all routing tables, including private, or hidden, routing tables. The output field table of the show route command does not display entries for private, or hidden, routing tables in Junos OS Release 9.5 and later.

show route all The following example displays a snippet of output from the **show route** command and then displays the same snippet of output from the **show route all** command:

```

user@host> show route
mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both
0                *[MPLS/0] 2d 02:24:39, metric 1
                  Receive
1                *[MPLS/0] 2d 02:24:39, metric 1
                  Receive
2                *[MPLS/0] 2d 02:24:39, metric 1
                  Receive
800017           *[VPLS/7] 1d 14:00:16
                  > via vt-3/2/0.32769, Pop
800018           *[VPLS/7] 1d 14:00:26
                  > via vt-3/2/0.32772, Pop

user@host> show route all
mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both
0                *[MPLS/0] 2d 02:19:12, metric 1
                  Receive
1                *[MPLS/0] 2d 02:19:12, metric 1

```

```
                Receive
2               *[MPLS/0] 2d 02:19:12, metric 1
                Receive
800017         *[VPLS/7] 1d 13:54:49
               > via vt-3/2/0.32769, Pop
800018         *[VPLS/7] 1d 13:54:59
               > via vt-3/2/0.32772, Pop
vt-3/2/0.32769 [VPLS/7] 1d 13:54:49
               Unusable
vt-3/2/0.32772 [VPLS/7] 1d 13:54:59
               Unusable
```

show route aspath-regex

Syntax	show route aspath-regex <i>regular-expression</i> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route aspath-regex <i>regular-expression</i>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the entries in the routing table that match the specified autonomous system (AS) path regular expression.
Options	<p><i>regular-expression</i>—Regular expression that matches an entire AS path.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	<p>You can specify a regular expression as:</p> <ul style="list-style-type: none"> • An individual AS number • A period wildcard used in place of an AS number • An AS path regular expression that is enclosed in parentheses <p>You also can include the operators described in the table of AS path regular expression operators in the <i>Junos Policy Framework Configuration Guide</i>. The following list summarizes these operators:</p> <ul style="list-style-type: none"> • {<i>m,n</i>}—At least <i>m</i> and at most <i>n</i> repetitions of the AS path term. • {<i>m</i>}—Exactly <i>m</i> repetitions of the AS path term. • {<i>m</i>,}—<i>m</i> or more repetitions of the AS path term. • *—Zero or more repetitions of an AS path term. • +—One or more repetitions of an AS path term. • ?—Zero or one repetition of an AS path term. • <i>aspath_term</i> <i>aspath_term</i>—Match one of the two AS path terms. <p>When you specify more than one AS number or path term, or when you include an operator in the regular expression, enclose the entire regular expression in quotation marks. For example, to match any path that contains AS number 234, specify the following command:</p> <pre>show route aspath-regex ".* 234 .*"</pre>
Required Privilege Level	view

List of Sample Output **show route aspath-regex (Matching a Specific AS Number) on page 407**
show route aspath-regex (Matching Any Path with Two AS Numbers) on page 407

Output Fields For information about output fields, see the output field table for the **show route** command.

**show route
aspath-regex
(Matching a Specific
AS Number)**

```
user@host> show route aspath-regex 65477
inet.0: 46411 destinations, 46411 routes (46409 active, 0 holddown, 2 hidden)
+ = Active Route, - = Last Active, * = Both

111.222.1.0/25      *[BGP/170] 00:08:48, localpref 100, from 111.222.2.24
                   AS Path: [65477] ({65488 65535}) IGP
                   to 111.222.18.225 via fpa0.0(111.222.18.233)
111.222.1.128/25   *[IS-IS/15] 09:15:37, metric 37, tag 1
                   to 111.222.18.225 via fpa0.0(111.222.18.233)
                   [BGP/170] 00:08:48, localpref 100, from 111.222.2.24
                   AS Path: [65477] ({65488 65535}) IGP
                   to 111.222.18.225 via fpa0.0(111.222.18.233)
...
```

**show route
aspath-regex
(Matching Any Path
with Two AS Numbers)**

```
user@host> show route aspath-regex ?.* 234 3561.*?
inet.0: 46351 destinations, 46351 routes (46349 active, 0 holddown, 2 hidden)
+ = Active Route, - = Last Active, * = Both

9.20.0.0/17        *[BGP/170] 01:35:00, localpref 100, from 131.103.20.49
                   AS Path: [666] 234 3561 2685 2686 Incomplete
                   to 192.156.169.1 via 192.156.169.14(so-0/0/0)
12.10.231.0/24     *[BGP/170] 01:35:00, localpref 100, from 131.103.20.49
                   AS Path: [666] 234 3561 5696 7369 IGP
                   to 192.156.169.1 via 192.156.169.14(so-0/0/0)
24.64.32.0/19      *[BGP/170] 01:34:59, localpref 100, from 131.103.20.49
                   AS Path: [666] 234 3561 6327 IGP
                   to 192.156.169.1 via 192.156.169.14(so-0/0/0)
...
```

show route best

Syntax	show route best <i>destination-prefix</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route best <i>destination-prefix</i> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the route in the routing table that is the best route to the specified address or range of addresses. The best route is the longest matching route.
Options	<p><i>destination-prefix</i>—Address or range of addresses.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route best on page 408</p> <p>show route best detail on page 410</p> <p>show route best extensive on page 410</p> <p>show route best terse on page 411</p>
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route best	<pre> user@host> show route best 10.255.70.103 inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 10.255.70.103/32 *[OSPF/10] 1d 13:19:20, metric 2 > to 10.31.1.6 via ge-3/1/0.0 via so-0/3/0.0 inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 10.255.70.103/32 *[RSVP/7] 1d 13:20:13, metric 2 > via so-0/3/0.0, label-switched-path green-r1-r3 private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both 10.0.0.0/8 *[Direct/0] 2d 01:43:34 > via fpx2.0 </pre>

```
[Direct/0] 2d 01:43:34  
> via fxp1.0
```

```

show route best detail user@host> show route best 10.255.70.103 detail
inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden)
Restart Complete
10.255.70.103/32 (1 entry, 1 announced)
  *OSPF   Preference: 10
          Next-hop reference count: 9
          Next hop: 10.31.1.6 via ge-3/1/0.0, selected
          Next hop: via so-0/3/0.0
          State: <Active Int>
          Local AS: 69
          Age: 1d 13:20:06      Metric: 2
          Area: 0.0.0.0
          Task: OSPF
          Announcement bits (2): 0-KRT 3-Resolve tree 2
          AS path: I

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
10.255.70.103/32 (1 entry, 1 announced)
  State: <FlashAll>
  *RSVP   Preference: 7
          Next-hop reference count: 5
          Next hop: via so-0/3/0.0 weight 0x1, selected
          Label-switched-path green-r1-r3
          Label operation: Push 100016
          State: <Active Int>
          Local AS: 69
          Age: 1d 13:20:59      Metric: 2
          Task: RSVP
          Announcement bits (1): 1-Resolve tree 2
          AS path: I

private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
10.0.0.0/8 (2 entries, 0 announced)
  *Direct Preference: 0
          Next hop type: Interface
          Next-hop reference count: 1
          Next hop: via fxp2.0, selected
          State: <Active Int>
          Age: 2d 1:44:20
          Task: IF
          AS path: I
  Direct Preference: 0
          Next hop type: Interface
          Next-hop reference count: 1
          Next hop: via fxp1.0, selected
          State: <NotBest Int>
          Inactive reason: No difference
          Age: 2d 1:44:20
          Task: IF
          AS path: I

```

show route best extensive The output for the **show route best extensive** command is identical to that for the **show route best detail** command. For sample output, see the **show route best detail** on page 410.


```

show route best terse user@host> show route best 10.255.70.103 terse
inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
* 10.255.70.103/32  0  10           2           >10.31.1.6
                                     so-0/3/0.0

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
* 10.255.70.103/32  R   7           2           >so-0/3/0.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
* 10.0.0.0/8        D   0           0           >fxp2.0
                    D   0           0           >fxp1.0

```

show route brief

Syntax	show route brief <destination-prefix> <logical-system (all logical-system-name)>
Syntax (EX Series Switch)	show route brief <destination-prefix>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display brief information about the active entries in the routing tables.
Options	<p>none—Display all active entries in the routing table.</p> <p>destination-prefix—(Optional) Display active entries for the specified address or range of addresses.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route brief on page 412
Output Fields	For information about output fields, see the Output Field table of the show route command.
show route brief	<pre> user@host> show route brief inet.0: 10 destinations, 10 routes (9 active, 0 holddown, 1 hidden) + = Active Route, - = Last Active, * = Both 0.0.0.0/0 *[Static/5] 1w5d 20:30:29 Discard 10.255.245.51/32 *[Direct/0] 2w4d 13:11:14 > via lo0.0 172.16.0.0/12 *[Static/5] 2w4d 13:11:14 > to 192.168.167.254 via fxp0.0 192.168.0.0/18 *[Static/5] 1w5d 20:30:29 > to 192.168.167.254 via fxp0.0 192.168.40.0/22 *[Static/5] 2w4d 13:11:14 > to 192.168.167.254 via fxp0.0 192.168.64.0/18 *[Static/5] 2w4d 13:11:14 > to 192.168.167.254 via fxp0.0 192.168.164.0/22 *[Direct/0] 2w4d 13:11:14 > via fxp0.0 192.168.164.51/32 *[Local/0] 2w4d 13:11:14 Local via fxp0.0 207.17.136.192/32 *[Static/5] 2w4d 13:11:14 > to 192.168.167.254 via fxp0.0 </pre>

```
green.inet.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
100.101.0.0/16    *[Direct/0] 1w5d 20:30:28
                  > via fe-0/0/3.0
100.101.2.3/32   *[Local/0] 1w5d 20:30:28
                  Local via fe-0/0/3.0
224.0.0.5/32     *[OSPF/10] 1w5d 20:30:29, metric 1
                  MultiRecv
```

show route ccc

Syntax	<code>show route ccc ccc</code> <code><brief detail extensive terse></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display circuit cross-connect (CCC) entries in the Multiprotocol Link Switching (MPLS) routing table.
Options	<code>ccc</code> —Name of an entry with a circuit cross-connect interface. <code>brief detail extensive terse</code> —(Optional) Display the specified level of output. <code>logical-system (all <i>logical-system-name</i>)</code> —(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• show connections on page 650
List of Sample Output	show route ccc extensive on page 414
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route ccc extensive	<pre>user@host> show route ccc fe-0/1/0.600 extensive mpls.0: 19 destinations, 19 routes (19 active, 0 holddown, 0 hidden) fe-0/1/2.600 (1 entry, 1 announced) TSI: KRT in-kerne fe-0/1/2.600.0 /16 -> {0.0.0.0} *CCC Preference: 7 Next-hop reference count: 2 Next hop: via so-0/0/3.0 weight 0x1, selected Label operation: Push 101424 State: <Active Int> Local AS: 100 Age: 28:13 Metric: 3 Task: MPLS Announcement bits (1): 0-KRT AS path: I</pre>

show route community

Syntax	<code>show route community <i>as-number:community-value</i></code> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	<code>show route community <i>as-number:community-value</i></code> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the route entries in each routing table that are members of a Border Gateway Protocol (BGP) community.
Options	<p><i>as-number:community-value</i>—One or more community identifiers. <i>as-number</i> is the AS number, and <i>community-value</i> is the community identifier. When you specify more than one community identifier, enclose the identifiers in double quotation marks. Community identifiers can include wildcards.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	Specifying the community option displays all routes matching the community found within the routing table. The community option does not limit the output to only the routes being advertised to the neighbor after any egress routing policy.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show route detail on page 424
List of Sample Output	show route community on page 415
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

```

show route community user@host> show route community 234:80
inet.0: 46511 destinations, 46511 routes (46509 active, 0 holddown, 2 hidden)
+ = Active Route, - = Last Active, * = Both

4.0.0.0/8          *[BGP/170] 03:33:07, localpref 100, from 131.103.20.49
                   AS Path: {666} 234 2548 1 IGP
                   to 192.156.169.1 via 192.156.169.14(so-0/0/0)
6.0.0.0/8          *[BGP/170] 03:33:07, localpref 100, from 131.103.20.49
                   AS Path: {666} 234 2548 568 721 Incomplete
                   to 192.156.169.1 via 192.156.169.14(so-0/0/0)
9.2.0.0/16         *[BGP/170] 03:33:06, localpref 100, from 131.103.20.49

```

```
AS Path: {666} 234 2548 1673 1675 1747 IGP  
to 192.156.169.1 via 192.156.169.14(so-0/0/0)
```

show route community-name

Syntax	show route community-name <i>community-name</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route community-name <i>community-name</i> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the route entries in each routing table that are members of a Border Gateway Protocol (BGP) community, specified by a community name.
Options	<i>community-name</i> —Name of the community. brief detail extensive terse—(Optional) Display the specified level of output. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show route community-name on page 417
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route community-name	<pre> user@host> show route community-name red-com inet.0: 17 destinations, 17 routes (16 active, 0 holddown, 1 hidden) inet.3: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden) instance1.inet.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden) red.inet.0: 11 destinations, 11 routes (11 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both 10.255.245.212/32 *[BGP/170] 00:04:40, localpref 100, from 10.255.245.204 AS path: 300 I > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix 20.20.20.20/32 *[BGP/170] 00:04:40, localpref 100, from 10.255.245.204 AS path: I > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix 100.1.4.0/24 *[BGP/170] 00:04:40, localpref 100, from 10.255.245.204 AS path: I > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden) mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden) </pre>

```
bgp.13vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
```

```
10.255.245.204:10:10.255.245.212/32
    *[BGP/170] 00:06:40, localpref 100, from 10.255.245.204
    AS path: 300 I
    > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix
10.255.245.204:10:20.20.20.20/32
    *[BGP/170] 00:36:02, localpref 100, from 10.255.245.204
    AS path: I
    > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix
10.255.245.204:10:100.1.4.0/24
    *[BGP/170] 00:36:02, localpref 100, from 10.255.245.204
    AS path: I
    > to 100.1.2.2 via ge-1/1/0.0, label-switched-path to_fix
```

```
inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
```

```
instance1.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```


show route damping

Syntax	show route damping (decayed history suppressed) <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route damping (decayed history suppressed) <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the Border Gateway Protocol (BGP) routes for which updates might have been reduced because of route flap damping.
Options	<p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>decayed—Display route damping entries that might no longer be valid, but are not suppressed.</p> <p>history—Display entries that have already been withdrawn, but have been logged.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>suppressed—Display entries that have been suppressed and are no longer being installed into the forwarding table or exported by routing protocols.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • clear bgp damping on page 26 • show policy damping on page 58
List of Sample Output	<p>show route damping decayed detail on page 422</p> <p>show route damping history on page 422</p> <p>show route damping history detail on page 423</p>
Output Fields	Table 114 on page 419 lists the output fields for the show route damping command. Output fields are listed in the approximate order in which they appear.

Table 114: show route damping Output Fields

Field Name	Field Description	Level of Output
<i>routing-table-name</i>	Name of the routing table—for example, <i>inet.0</i> .	All levels
<i>destinations</i>	Number of destinations for which there are routes in the routing table.	All levels

Table 114: show route damping Output Fields (*continued*)

Field Name	Field Description	Level of Output
<i>number routes</i>	Number of routes in the routing table and total number of routes in the following states: <ul style="list-style-type: none"> • active • holdddown (routes that are in a pending state before being declared inactive) • hidden (the routes are not used because of a routing policy) 	All levels
<i>destination-prefix (entry, announced)</i>	Destination prefix. The entry value is the number of routes for this destination, and the announced value is the number of routes being announced for this destination.	detail extensive
<i>[protocol, preference]</i>	Protocol from which the route was learned and the preference value for the route. <ul style="list-style-type: none"> • +—A plus sign indicates the active route, which is the route installed from the routing table into the forwarding table. • -—A hyphen indicates the last active route. • *—An asterisk indicates that the route is both the active and the last active route. An asterisk before a to line indicates the best subpath to the route. <p>In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, Junos OS stores the 1's complement of the LocalPref value in the Preference2 field. For example, if the LocalPref value for Route 1 is 100, the Preference2 value is -101. If the LocalPref value for Route 2 is 155, the Preference2 value is -156. Route 2 is preferred because it has a higher LocalPref value and a lower Preference2 value.</p>	All levels
Next-hop reference count	Number of references made to the next hop.	detail extensive
Source	IP address of the route source.	detail extensive
Next hop	Network layer address of the directly reachable neighboring system.	detail extensive
via	Interface used to reach the next hop. If there is more than one interface available to the next hop, the interface that is actually used is followed by the word Selected .	detail extensive
Protocol next hop	Network layer address of the remote routing device that advertised the prefix. This address is used to derive a forwarding next hop.	detail extensive
Indirect next hop	Index designation used to specify the mapping between protocol next hops, tags, kernel export policy, and the forwarding next hops.	detail extensive
State	Flags for this route. For a description of possible values for this field, see the output field table for the show route detail command.	detail extensive
Local AS	AS number of the local routing device.	detail extensive
Peer AS	AS number of the peer routing device.	detail extensive

Table 114: show route damping Output Fields (*continued*)

Field Name	Field Description	Level of Output
Age	How long the route has been known.	detail extensive
Metric	Metric for the route.	detail extensive
Task	Name of the protocol that has added the route.	detail extensive
Announcement bits	List of protocols that announce this route. n-Resolve inet indicates that the route is used for route resolution for next hops found in the routing table. n is an index used by Juniper Networks customer support only.	detail extensive
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path originated:</p> <ul style="list-style-type: none"> • I—IGP. • E—EGP. • ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> • []—Brackets enclose the local AS number associated with the AS path if more than one AS number is configured on the routing device or if AS path prepending is configured. • { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. • ()—Parentheses enclose a confederation. • ([])—Parentheses and brackets enclose a confederation set. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>	All levels
to	Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.	brief none
via	Interface used to reach the next hop. If there is more than one interface available to the next hop, the interface that is actually used is followed by the word Selected .	brief none
Communities	Community path attribute for the route. See the output field table for the show route detail command.	detail extensive
Localpref	Local preference value included in the route.	All levels
Router ID	BGP router ID as advertised by the neighbor in the open message.	detail extensive
Merit (last update/now)	Last updated and current figure-of-merit value.	detail extensive

Table 114: show route damping Output Fields (*continued*)

Field Name	Field Description	Level of Output
damping-parameters	Name that identifies the damping parameters used, which is defined in the damping statement at the [edit policy-options] hierarchy level.	detail extensive
Last update	Time of most recent change in path attributes.	detail extensive
First update	Time of first change in path attributes, which started the route damping process.	detail extensive
Flaps	Number of times the route has gone up or down or its path attributes have changed.	detail extensive
Suppressed	(suppressed keyword only) This route is currently suppressed. A suppressed route does not appear in the forwarding table and routing protocols do not export it.	All levels
Reusable in	(suppressed keyword only) Time when a suppressed route will again be available.	All levels
Preference will be	(suppressed keyword only) Preference value that will be applied to the route when it is again active.	All levels

```

show route damping      user@host> show route damping decayed detail
decayed detail          inet.0: 173319 destinations, 1533668 routes (172625 active, 4 holddown, 108083
                           hidden)
                           10.0.111.0/24 (7 entries, 1 announced)
                             *BGP      Preference: 170/-101
                               Next-hop reference count: 151973
                               Source: 172.23.2.129
                               Next hop: via so-1/2/0.0
                               Next hop: via so-5/1/0.0, selected
                               Next hop: via so-6/0/0.0
                               Protocol next hop: 172.23.2.129
                               Indirect next hop: 89a1a00 264185
                               State: <Active Ext>
                               Local AS: 65000 Peer AS: 65490
                               Age: 3:28      Metric2: 0
                               Task: BGP_65490.172.23.2.129+179
                               Announcement bits (6): 0-KRT 1-RT 4-KRT 5-BGP.0.0.0.0+179

                               6-Resolve tree 2 7-Resolve tree 3
                               AS path: 65490 65520 65525 65525 65525 65525 I ()
                               Communities: 65501:390 65501:2000 65501:3000 65504:701
                               Localpref: 100
                               Router ID: 172.23.2.129
                               Merit (last update/now): 1934/1790
                               damping-parameters: damping-high
                               Last update:          00:03:28 First update:          00:06:40
                               Flaps: 2

show route damping      user@host> show route damping history
history                  inet.0: 173320 destinations, 1533529 routes (172624 active, 6 holddown, 108122
                           hidden)
                           + = Active Route, - = Last Active, * = Both

```

```

10.108.0.0/15      [BGP ] 2d 22:47:58, localpref 100
                   AS path: 65220 65501 65502 I
                   > to 192.168.60.85 via so-3/1/0.0

```

```

show route damping user@host> show route damping history detail
history detail      inet.0: 173319 destinations, 1533435 routes (172627 active, 2 holddown, 108105
                    hidden)
                    10.108.0.0/15 (3 entries, 1 announced)
                      BGP                               /-101
                      Next-hop reference count: 69058
                      Source: 192.168.60.85
                      Next hop: 192.168.60.85 via so-3/1/0.0, selected
                      State: <Hidden Ext>
                      Inactive reason: Unusable path
                      Local AS: 65000 Peer AS: 65220
                      Age: 2d 22:48:10
                      Task: BGP_65220.192.168.60.85+179
                      AS path: 65220 65501 65502 I ()
                      Communities: 65501:390 65501:2000 65501:3000 65504:3561
                      Localpref: 100
                      Router ID: 192.168.80.25
                      Merit (last update/now): 1000/932
                      damping-parameters: set-normal
                      Last update:          00:01:05 First update:          00:01:05
                      Flaps: 1

```

show route detail

Syntax	show route detail <destination-prefix> <logical-system (all logical-system-name)>
Syntax (EX Series Switch)	show route detail <destination-prefix>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display detailed information about the active entries in the routing tables.
Options	<p>none—Display all active entries in the routing table on all systems.</p> <p>destination-prefix—(Optional) Display active entries for the specified address or range of addresses.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route detail on page 433
Output Fields	Table 115 on page 424 describes the output fields for the show route detail command. Output fields are listed in the approximate order in which they appear.

Table 115: show route detail Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.
<i>number routes</i>	Number of routes in the routing table and total number of routes in the following states: <ul style="list-style-type: none"> active (routes that are active) holddown (routes that are in the pending state before being declared inactive) hidden (routes that are not used because of a routing policy)

Table 115: show route detail Output Fields (*continued*)

Field Name	Field Description
<i>route-destination</i> (entry, announced)	<p>Route destination (for example:10.0.0.1/24). The entry value is the number of routes for this destination, and the announced value is the number of routes being announced for this destination. Sometimes the route destination is presented in another format, such as:</p> <ul style="list-style-type: none"> • MPLS-label (for example, 80001). • interface-name (for example, ge-1/0/2). • neighbor-address:control-word-status:encapsulation type:vc-id:source (Layer 2 circuit only; for example, 10.1.1.195:NoCtrlWord:1:1:Local/96). • neighbor-address—Address of the neighbor. • control-word-status—Whether the use of the control word has been negotiated for this virtual circuit: NoCtrlWord or CtrlWord. • encapsulation type—Type of encapsulation, represented by a number: (1) Frame Relay DLCI, (2) ATM AAL5 VCC transport, (3) ATM transparent cell transport, (4) Ethernet, (5) VLAN Ethernet, (6) HDLC, (7) PPP, (8) ATM VCC cell transport, (10) ATM VPC cell transport • vc-id—Virtual circuit identifier. • source—Source of the advertisement: Local or Remote.
label stacking	<p>(Next-to-the-last-hop routing device for MPLS only) Depth of the Multiprotocol Label Switching (MPLS) label stack, where the label-popping operation is needed to remove one or more labels from the top of the stack. A pair of routes is displayed, because the pop operation is performed only when the stack depth is two or more labels.</p> <ul style="list-style-type: none"> • S=0 route indicates that a packet with an incoming label stack depth of 2 or more exits this routing device with one fewer label (the label-popping operation is performed). • If there is no S= information, the route is a normal MPLS route, which has a stack depth of 1 (the label-popping operation is not performed).
[<i>protocol, preference</i>]	<p>Protocol from which the route was learned and the preference value for the route.</p> <ul style="list-style-type: none"> • +—A plus sign indicates the active route, which is the route installed from the routing table into the forwarding table. • -—A hyphen indicates the last active route. • *—An asterisk indicates that the route is both the active and the last active route. An asterisk before a to line indicates the best subpath to the route. <p>In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, Junos OS stores the 1's complement of the LocalPref value in the Preference2 field. For example, if the LocalPref value for Route 1 is 100, the Preference2 value is -101. If the LocalPref value for Route 2 is 155, the Preference2 value is -156. Route 2 is preferred because it has a higher LocalPref value and a lower Preference2 value.</p>
Level	<p>(IS-IS only). In IS-IS, a single AS can be divided into smaller groups called areas. Routing between areas is organized hierarchically, allowing a domain to be administratively divided into smaller areas. This organization is accomplished by configuring Level 1 and Level 2 intermediate systems. Level 1 systems route within an area; when the destination is outside an area, they route toward a Level 2 system. Level 2 intermediate systems route between areas and toward other ASs.</p>
Route Distinguisher	IP subnet augmented with a 64-bit prefix.
Next-hop type	Type of next hop. For a description of possible values for this field, see Table 116 on page 428.

Table 115: show route detail Output Fields (*continued*)

Field Name	Field Description
Next-hop reference count	Number of references made to the next hop.
Flood nexthop branches exceed maximum message	Indicates that the number of flood next-hop branches exceeded the system limit of 32 branches, and only a subset of the flood next-hop branches were installed in the kernel.
Source	IP address of the route source.
Next hop	Network layer address of the directly reachable neighboring system.
via	<p>Interface used to reach the next hop. If there is more than one interface available to the next hop, the name of interface that is actually used is followed by the word Selected. This field can also contain the following information:</p> <ul style="list-style-type: none"> • Weight—Value used to distinguish primary, secondary, and fast reroute backup routes. Weight information is available when Multiprotocol Label Switching (MPLS) label-switched path (LSP) link protection, node-link protection, or fast reroute is enabled, or when the standby state is enabled for secondary paths. A lower weight value is preferred. Among routes with the same weight value, load balancing is possible. • Balance—Balance coefficient indicating how traffic of unequal cost is distributed among next hops when a routing device is performing unequal-cost load balancing. This information is available when you enable Border Gateway Protocol (BGP) multipath load balancing.
Label-switched-path lsp-path-name	Name of the label-switched path (LSP) used to reach the next hop.
Label operation	MPLS label and operation occurring at this routing device. The operation can be pop (where a label is removed from the top of the stack), push (where another label is added to the label stack), or swap (where a label is replaced by another label).
Interface	(Local only) Local interface name.
Protocol next hop	Network layer address of the remote routing device that advertised the prefix. This address is used to derive a forwarding next hop.
Indirect next hop	Index designation used to specify the mapping between protocol next hops, tags, kernel export policy, and the forwarding next hops.
State	State of the route (a route can be in more than one state). See Table 117 on page 430.
Local AS	AS number of the local routing device.
Age	How long the route has been known.
Metricn	Cost value of the indicated route. For routes within an AS, the cost is determined by IGP and the individual protocol metrics. For external routes, destinations, or routing domains, the cost is determined by a preference value.
MED-plus-IGP	Metric value for BGP path selection to which the IGP cost to the next-hop destination has been added.

Table 115: show route detail Output Fields (*continued*)

Field Name	Field Description
TTL-Action	<p>For MPLS LSPs, state of the TTL propagation attribute. Can be enabled or disabled for all RSVP-signalled and LDP-signalled LSPs or for specific VRF routing instances.</p> <p>For sample output, see show route table.</p>
Task	Name of the protocol that has added the route.
Announcement bits	List of protocols that announce this route. n-Resolve inet indicates that the route is used for route resolution for next hops found in the routing table. n is an index used by Juniper Networks customer support only.
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path originated:</p> <ul style="list-style-type: none"> • I—IGP. • E—EGP. • ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> • []—Brackets enclose the number that precedes the AS path. This number represents the number of ASs present in the AS path, when calculated as defined in RFC 4271. This value is used in the AS-path merge process, as defined in RFC 4893. • []—If more than one AS number is configured on the routing device, or if AS path prepending is configured, brackets enclose the local AS number associated with the AS path. • { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. • ()—Parentheses enclose a confederation. • ([])—Parentheses and brackets enclose a confederation set. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>
VC Label	MPLS label assigned to the Layer 2 circuit virtual connection.
MTU	Maximum transmission unit (MTU) of the Layer 2 circuit.
VLAN ID	VLAN identifier of the Layer 2 circuit.
Prefixes bound to route	Forwarding Equivalent Class (FEC) bound to this route. Applicable only to routes installed by LDP.
Communities	Community path attribute for the route. See Table 118 on page 432 for all possible values for this field.
Layer2-info: encaps	Layer 2 encapsulation (for example, VPLS).
control flags	Control flags: none or Site Down .
mtu	Maximum transmission unit (MTU) information.

Table 115: show route detail Output Fields (*continued*)

Field Name	Field Description
Label-Base, range	First label in a block of labels and label block size. A remote PE routing device uses this first label when sending traffic toward the advertising PE routing device.
status vector	Layer 2 VPN and VPLS network layer reachability information (NLRI).
Localpref	Local preference value included in the route.
Router ID	BGP router ID as advertised by the neighbor in the open message.
Primary Routing Table	In a routing table group, the name of the primary routing table in which the route resides.
Secondary Tables	In a routing table group, the name of one or more secondary tables in which the route resides.

Table 116 on page 428 describes all possible values for the **Next-hop Types** output field.

Table 116: Next-Hop Types Output Field Values

Next-Hop Type	Description
broadcast (bcast)	Broadcast next hop.
deny	Deny next hop.
flood	Flood next hop. Consists of components called branches, up to a maximum of 32 branches. Each flood next-hop branch sends a copy of the traffic to the forwarding interface. Used by P2MP RSVP, P2MP LDP, P2MP CCC, and multicast.
hold	Next hop is waiting to be resolved into a unicast or multicast type.
indexed (idxd)	Indexed next hop.
indirect (indr)	Indirect next hop.
local (locl)	Local address on an interface.
routed multicast (mcrtr)	Regular multicast next hop.
multicast (mcst)	Wire multicast next hop (limited to the LAN).
multicast discard (mdsc)	Multicast discard.
multicast group (mgrp)	Multicast group member.
receive (recv)	Receive.

Table 116: Next-Hop Types Output Field Values (*continued*)

Next-Hop Type	Description
reject (rjct)	Discard. An ICMP unreachable message was sent.
resolve (rslv)	Resolving next hop.
unicast (ucst)	Unicast.
unilist (ulst)	List of unicast next hops. A packet sent to this next hop goes to any next hop in the list.

Table 117 on page 430 describes all possible values for the **State** output field. A route can be in more than one state (for example, **<Active NoReadvrt Int Ext>**).

Table 117: State Output Field Values

Value	Description
Accounting	Route needs accounting.
Active	Route is active.
Always Compare MED	Path with a lower multiple exit discriminator (MED) is available.
AS path	Shorter AS path is available.
Clone	Route is a clone.
Cisco Non-deterministic MED selection	Cisco nondeterministic MED is enabled and a path with a lower MED is available.
Cluster list length	Length of cluster list sent by the route reflector.
Delete	Route has been deleted.
Ex	Exterior route.
Ext	BGP route received from an external BGP neighbor.
FlashAll	Forces all protocols to be notified of a change to any route, active or inactive, for a prefix. When not set, protocols are informed of a prefix only when the active route changes.
Hidden	Route not used because of routing policy.
IfCheck	Route needs forwarding RPF check.
IGP metric	Path through next hop with lower IGP metric is available.
Local Preference	Path with a higher local preference value is available.
Inactive reason	Flags for this route, which was not selected as best for a particular destination.
Initial	Route being added.
Int	Interior route.
Int Ext	BGP route received from an internal BGP peer or a BGP confederation peer.

Table 117: State Output Field Values (*continued*)

Value	Description
Interior > Exterior > Exterior via Interior	Direct, static, IGP, or EBGp path is available.
Martian	Route is a martian (ignored because it is obviously invalid).
MartianOK	Route exempt from martian filtering.
Next hop address	Path with lower metric next hop is available.
No difference	Path from neighbor with lower IP address is available.
NoReadvrt	Route not to be advertised.
NotBest	Route not chosen because it does not have the lowest MED.
Not Best in its group	Incoming BGP AS is not the best of a group (only one AS can be the best).
NotInstall	Route not to be installed in the forwarding table.
Number of gateways	Path with greater number of next hops is available.
Origin	Path with lower origin code is available.
Pending	Route pending because of a hold-down configured on another route.
Release	Route scheduled for release.
RIB preference	Route from a higher-numbered routing table is available.
Route Distinguisher	64-bit prefix added to IP subnets to make them unique.
Route Metric or MED comparison	Route with a lower metric or MED is available.
Route Preference	Route with lower preference value is available
Router ID	Path through neighbor with lower ID is available.
Secondary	Route not a primary route.
Unusable path	Path is not usable because of one of the following conditions: <ul style="list-style-type: none"> • The route is damped. • The route is rejected by an import policy. • The route is unresolved.
Update source	Last tiebreaker is the lowest IP address value.

Table 118 on page 432 describes the possible values for the **Communities** output field.

Table 118: Communities Output Field Values

Value	Description
<i>area-number</i>	4 bytes, encoding a 32-bit area number. For AS-external routes, the value is 0 . A nonzero value identifies the route as internal to the OSPF domain, and as within the identified area. Area numbers are relative to a particular OSPF domain.
<i>bandwidth: local AS number:link-bandwidth-number</i>	Link-bandwidth community value used for unequal-cost load balancing. When BGP has several candidate paths available for multipath purposes, it does not perform unequal-cost load balancing according to the link-bandwidth community unless all candidate paths have this attribute.
<i>domain-id</i>	Unique configurable number that identifies the OSPF domain.
<i>domain-id-vendor</i>	Unique configurable number that identifies the OSPF domain.
<i>link-bandwidth-number</i>	Link-bandwidth number: from 0 through 4,294,967,295 (bytes per second).
<i>local AS number</i>	Local AS number: from 1 through 65,535 .
<i>options</i>	1 byte. Currently this is only used if the route type is 5 or 7 . Setting the least significant bit in the field indicates that the route carries a type 2 metric.
<i>origin</i>	(Used with VPNs) Identifies where the route came from.
<i>ospf-route-type</i>	1 byte, encoded as 1 or 2 for intra-area routes (depending on whether the route came from a type 1 or a type 2 LSA); 3 for summary routes; 5 for external routes (area number must be 0); 7 for NSSA routes; or 129 for sham link endpoint addresses.
<i>rte-type</i>	Displays the area number, OSPF route type, and option of the route. This is configured using the BGP extended community attribute 0x0306 . The format is <i>area-number:ospf-route-type:options</i> .
<i>route-type-vendor</i>	Displays the area number, OSPF route type, and option of the route. This is configured using the BGP extended community attribute 0x8000 . The format is <i>area-number:ospf-route-type:options</i> .
<i>target</i>	Defines which VPN the route participates in; target has the format <i>32-bit IP address:16-bit number</i> . For example, 10.19.0.0:100 .
<i>unknown IANA</i>	Incoming IANA codes with a value between 0x1 and 0x7fff . This code of the BGP extended community attribute is accepted, but it is not recognized.
<i>unknown OSPF vendor community</i>	Incoming IANA codes with a value above 0x8000 . This code of the BGP extended community attribute is accepted, but it is not recognized.

show route detail user@host> **show route detail**

```
inet.0: 22 destinations, 23 routes (21 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 29
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 1:31:43
    Task: RT
    Announcement bits (2): 0-KRT 3-Resolve tree 2
    AS path: I

10.31.1.0/30 (2 entries, 1 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 2
    Next hop: via so-0/3/0.0, selected
    State: <Active Int>
    Local AS: 69
    Age: 1:30:17
    Task: IF
    Announcement bits (1): 3-Resolve tree 2
    AS path: I
  OSPF Preference: 10
    Next-hop reference count: 1
    Next hop: via so-0/3/0.0, selected
    State: <Int>
    Inactive reason: Route Preference
    Local AS: 69
    Age: 1:30:17    Metric: 1
    Area: 0.0.0.0
    Task: OSPF
    AS path: I

10.31.1.1/32 (1 entry, 1 announced)
  *Local Preference: 0
    Next hop type: Local
    Next-hop reference count: 7
    Interface: so-0/3/0.0
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:30:20
    Task: IF
    Announcement bits (1): 3-Resolve tree 2
    AS path: I

...
```

```
10.31.2.0/30 (1 entry, 1 announced)
  *OSPF   Preference: 10
          Next-hop reference count: 9
          Next hop: via so-0/3/0.0
          Next hop: 10.31.1.6 via ge-3/1/0.0, selected
          State: <Active Int>
          Local AS: 69
          Age: 1:29:56   Metric: 2
          Area: 0.0.0.0
          Task: OSPF
          Announcement bits (2): 0-KRT 3-Resolve tree 2
          AS path: I

...

224.0.0.2/32 (1 entry, 1 announced)
  *PIM    Preference: 0
          Next-hop reference count: 18
          State: <Active NoReadvrt Int>
          Local AS: 69
          Age: 1:31:45
          Task: PIM Recv
          Announcement bits (2): 0-KRT 3-Resolve tree 2
          AS path: I

...

224.0.0.22/32 (1 entry, 1 announced)
  *IGMP   Preference: 0
          Next-hop reference count: 18
          State: <Active NoReadvrt Int>
          Local AS: 69
          Age: 1:31:43
          Task: IGMP
          Announcement bits (2): 0-KRT 3-Resolve tree 2
          AS path: I

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

10.255.70.103/32 (1 entry, 1 announced)
  State: <FlashAll>
  *RSVP   Preference: 7
          Next-hop reference count: 6
          Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1, selected
          Label-switched-path green-r1-r3
          Label operation: Push 100096
          State: <Active Int>
          Local AS: 69
          Age: 1:25:49   Metric: 2
          Task: RSVP
          Announcement bits (2): 1-Resolve tree 1 2-Resolve tree 2
          AS path: I

10.255.71.238/32 (1 entry, 1 announced)
  State: <FlashAll>
  *RSVP   Preference: 7
          Next-hop reference count: 6
          Next hop: via so-0/3/0.0 weight 0x1, selected
          Label-switched-path green-r1-r2
          State: <Active Int>
          Local AS: 69
```



```

Age: 1:25:49    Metric: 1
Task: RSVP
Announcement bits (2): 1-Resolve tree 1 2-Resolve tree 2
AS path: I

private__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

47.0005.80ff.f800.0000.0108.0001.0102.5507.1052/152 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active Int>
    Local AS: 69
    Age: 1:31:44
    Task: IF
    AS path: I

mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
0 (1 entry, 1 announced)
  *MPLS Preference: 0
    Next hop type: Receive
    Next-hop reference count: 6
    State: <Active Int>
    Local AS: 69
    Age: 1:31:45    Metric: 1
    Task: MPLS
    Announcement bits (1): 0-KRT
    AS path: I

...

mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
299776 (1 entry, 1 announced)
TSI:
KRT in-kernel 299776 /52 -> {Flood}
  *RSVP Preference: 7
    Next hop type: Flood
    Next-hop reference count: 130
    Flood nexthop branches exceed maximum
    Address: 0x8ea65d0

...

800010 (1 entry, 1 announced)
  *VPLS Preference: 7
    Next-hop reference count: 2
    Next hop: via vt-3/2/0.32769, selected
    Label operation: Pop
    State: <Active Int>
    Age: 1:29:30
    Task: Common L2 VC
    Announcement bits (1): 0-KRT
    AS path: I

vt-3/2/0.32769 (1 entry, 1 announced)
  *VPLS Preference: 7
    Next-hop reference count: 2
    Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1, selected
    Label-switched-path green-r1-r3

```

```

Label operation: Push 800012, Push 100096(top)
Protocol next hop: 10.255.70.103
Push 800012
Indirect next hop: 87272e4 1048574
State: <Active Int>
Age: 1:29:30    Metric2: 2
Task: Common L2 VC
Announcement bits (2): 0-KRT 1-Common L2 VC
AS path: I
Communities: target:11111:1 Layer2-info: encaps:VPLS,
control flags:, mtu: 0

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)

abcd::10:255:71:52/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active Int>
    Local AS:    69
    Age: 1:31:44
    Task: IF
    AS path: I

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active NoReadvrt Int>
    Local AS:    69
    Age: 1:31:44
    Task: IF
    AS path: I

ff02::2/128 (1 entry, 1 announced)
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS:    69
    Age: 1:31:45
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::d/128 (1 entry, 1 announced)
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS:    69
    Age: 1:31:45
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::16/128 (1 entry, 1 announced)
  *MLD Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS:    69

```

```

Age: 1:31:43
Task: MLD
Announcement bits (1): 0-KRT
AS path: I

private.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.16385, selected
    State: <Active NoReadvrt Int>
    Age: 1:31:44
    Task: IF
    AS path: I

green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)

10.255.70.103:1:3:1/96 (1 entry, 1 announced)
  *BGP Preference: 170/-101
    Route Distinguisher: 10.255.70.103:1
    Next-hop reference count: 7
    Source: 10.255.70.103
    Protocol next hop: 10.255.70.103
    Indirect next hop: 2 no-forward
    State: <Secondary Active Int Ext>
    Local AS: 69 Peer AS: 69
    Age: 1:25:49 Metric2: 1
    Task: BGP_69.10.255.70.103+179
    Announcement bits (1): 0-green-l2vpn
    AS path: I
    Communities: target:11111:1 Layer2-info: encaps:VPLS,
    control flags:, mtu: 0
    Label-base: 800008, range: 8
    Localpref: 100
    Router ID: 10.255.70.103
    Primary Routing Table bgp.l2vpn.0

10.255.71.52:1:1:1/96 (1 entry, 1 announced)
  *L2VPN Preference: 170/-1
    Next-hop reference count: 5
    Protocol next hop: 10.255.71.52
    Indirect next hop: 0 -
    State: <Active Int Ext>
    Age: 1:31:40 Metric2: 1
    Task: green-l2vpn
    Announcement bits (1): 1-BGP.0.0.0.0+179
    AS path: I
    Communities: Layer2-info: encaps:VPLS, control flags:Site-Down,
    mtu: 0
    Label-base: 800016, range: 8, status-vector: 0x9F

10.255.71.52:1:5:1/96 (1 entry, 1 announced)
  *L2VPN Preference: 170/-101
    Next-hop reference count: 5
    Protocol next hop: 10.255.71.52
    Indirect next hop: 0 -
    State: <Active Int Ext>
    Age: 1:31:40 Metric2: 1
    Task: green-l2vpn

```

```
Announcement bits (1): 1-BGP.0.0.0+179
AS path: I
Communities: Layer2-info: encaps:VPLS, control flags:, mtu: 0
Label-base: 800008, range: 8, status-vector: 0x9F

...

l2circuit.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
10.245.255.63:CtrlWord:4:3:Local/96 (1 entry, 1 announced)
  *L2CKT Preference: 7
    Next hop: via so-1/1/2.0 weight 1, selected
    Label-switched-path my-lsp
    Label operation: Push 100000[0]
    Protocol next hop: 10.245.255.63 Indirect next hop: 86af000 296
    State: <Active Int>
    Local AS: 99
    Age: 10:21
    Task: l2 circuit
    Announcement bits (1): 0-LDP
    AS path: I
    VC Label 100000, MTU 1500, VLAN ID 512
```

show route exact

Syntax	<code>show route exact <i>destination-prefix</i></code> <code><brief detail extensive terse></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>show route exact <i>destination-prefix</i></code> <code><brief detail extensive terse></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display only the routes that exactly match the specified address or range of addresses.
Options	<code>brief detail extensive terse</code> —(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief. <i>destination-prefix</i> —Address or range of addresses. <code>logical-system (all <i>logical-system-name</i>)</code> —(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	<code>show route exact</code> on page 439 <code>show route exact detail</code> on page 439 <code>show route exact extensive</code> on page 441 <code>show route exact terse</code> on page 441
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route exact	<pre> user@host> show route exact 207.17.136.0/24 inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 207.17.136.0/24 *[Static/5] 2d 03:30:22 > to 192.168.71.254 via fxp0.0 </pre>
show route exact detail	<pre> user@host> show route exact 207.17.136.0/24 detail inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden) Restart Complete 207.17.136.0/24 (1 entry, 1 announced) *Static Preference: 5 Next-hop reference count: 29 Next hop: 192.168.71.254 via fxp0.0, selected State: <Active NoReadvrt Int Ext> Local AS: 69 Age: 2d 3:30:26 Task: RT </pre>

Announcement bits (2): 0-KRT 3-Resolve tree 2
AS path: I

```

show route exact extensive user@host> show route exact 207.17.136.0/24 extensive
                             inet.0: 22 destinations, 23 routes (21 active, 0 holddown, 1 hidden)
                             207.17.136.0/24 (1 entry, 1 announced)
                             TSI:
                             KRT in-kernel 207.17.136.0/24 -> {192.168.71.254}
                             *Static Preference: 5
                             Next-hop reference count: 29
                             Next hop: 192.168.71.254 via fxp0.0, selected
                             State: <Active NoReadvrt Int Ext>
                             Local AS: 69
                             Age: 1:25:18
                             Task: RT
                             Announcement bits (2): 0-KRT 3-Resolve tree 2
                             AS path: I

```

```

show route exact terse user@host> show route exact 207.17.136.0/24 terse

inet.0: 22 destinations, 23 routes (21 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both
A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
* 207.17.136.0/24  S  5                      >192.168.71.254

```

show route export

Syntax	show route export <brief detail> <instance <instance-name> routing-table-name> <logical-system (all logical-system-name)>
Syntax (EX Series Switch)	show route export <brief detail> <instance <instance-name> routing-table-name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display policy-based route export information. Policy-based export simplifies the process of exchanging route information between routing instances.
Options	<p>none—(Same as brief.) Display standard information about policy-based export for all instances and routing tables on all systems.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>instance <instance-name>—(Optional) Display a particular routing instance for which policy-based export is currently enabled.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>routing-table-name—(Optional) Display information about a particular routing table (for example, inet.0) for which policy-based export is currently enabled. (For information about the different types of routing tables, see the <i>Junos Routing Protocols Configuration Guide</i>.)</p>
Required Privilege Level	view
List of Sample Output	<p>show route export on page 443</p> <p>show route export detail on page 443</p> <p>show route export instance detail on page 443</p>
Output Fields	Table 119 on page 442 lists the output fields for the show route export command. Output fields are listed in the approximate order in which they appear.

Table 119: show route export Output Fields

Field Name	Field Description	Level of Output
Table or table-name	Name of the routing tables that either import or export routes.	All levels
Routes	Number of routes exported from this table into other tables. If a particular route is exported to different tables, the counter will only increment by one.	brief none

Table 119: show route export Output Fields (*continued*)

Field Name	Field Description	Level of Output
Export	Whether the table is currently exporting routes to other tables: Y or N (Yes or No).	brief none
Import	Tables currently importing routes from the originator table. (Not displayed for tables that are not exporting any routes.)	detail
Flags	(instance keyword only) Flags for this feature on this instance: <ul style="list-style-type: none"> config auto-policy—The policy was deduced from the configured IGP export policies. cleanup—Configuration information for this instance is no longer valid. config—The instance was explicitly configured. 	detail
Options	(instance keyword only) Configured option displays the type of routing tables the feature handles: <ul style="list-style-type: none"> unicast—Indicates <i>instance.inet.0</i>. multicast—Indicates <i>instance.inet.2</i>. unicast multicast—Indicates <i>instance.inet.0</i> and <i>instance.inet.2</i>. 	detail
Import policy	(instance keyword only) Policy that route export uses to construct the import-export matrix. Not displayed if the instance type is vrf .	detail
Instance	(instance keyword only) Name of the routing instance.	detail
Type	(instance keyword only) Type of routing instance: forwarding , non-forwarding , or vrf .	detail

```

show route export  user@host> show route export
Table              Export      Routes
inet.0             N          0
black.inet.0       Y          3
red.inet.0         Y          4

show route export  user@host> show route export detail
detail            inet.0             Routes:      0
                   black.inet.0           Routes:      3
                   Import: [ inet.0 ]
                   red.inet.0             Routes:      4
                   Import: [ inet.0 ]

show route export  user@host> show route export instance detail
instance detail   Instance: master      Type: forwarding
                   Flags: <config auto-policy> Options: <unicast multicast>
                   Import policy: [ (ospf-master-from-red || isis-master-from-black) ]
                   Instance: black        Type: non-forwarding
                   Instance: red          Type: non-forwarding

```

show route export vrf-target

Syntax	show route export vrf-target <brief detail> <community <i>community--regular-expression</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display the VPN routing and forwarding (VRF) target communities for which policy-based route export is currently distributing routes. This command is relevant when there are overlapping virtual private networks (VPNs).
Options	<p>none—Display standard information about all target communities.</p> <p>brief detail—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>community <i>community-regular-expression</i>—(Optional) Display information about the specified community.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route export vrf-target on page 445</p> <p>show route export vrf-target community on page 445</p> <p>show route export vrf-target detail on page 445</p>
Output Fields	Table 120 on page 444 lists the output fields for the show route export vrf-target command. Output fields are listed in the approximate order in which they appear.

Table 120: show route export vrf-target Output Fields

Field Name	Field Description	Level of Output
Route target	Target communities for which auto-export is currently distributing routes.	brief none
Family	Routing table entries for the specified family.	brief none
<i>type-of-routing-table(s)</i>	Type of routing tables the feature handles: <ul style="list-style-type: none"> unicast—Indicates <i>instance.inet.0</i>. multicast—Indicates <i>instance.inet.2</i>. unicast multicast—Indicates <i>instance.inet.0</i> and <i>instance.inet.2</i>. 	brief none
Import	Number of routing tables that are currently importing routes with this target community. Omitted for tables that are not importing routes.	brief none

Table 120: show route export vrf-target Output Fields (*continued*)

Field Name	Field Description	Level of Output
Export	Number of routing tables that are currently exporting routes with this target community. Omitted for tables that are not exporting routes.	brief none
Target	Target communities, family, and options for which auto-export is currently distributing routes.	detail
Import table(s)	Name of the routing tables that are importing a particular route target.	detail
Export table(s)	Name of the routing tables that are exporting a particular route target.	detail

```

show route export      user@host> show route export vrf-target
vrf-target           Route Target      Family      Import      Export
69:1                   inet      unicast      2           2
69:2                   inet      unicast      2           2

show route export      user@host> show route export vrf-target community target:69:1
vrf-target community Route Target      Family      Import      Export
69:1                   inet      unicast      2           2

show route export      user@host> show route export vrf-target detail
vrf-target detail    Target: 1:12      inet      unicast
                        Import table(s): vrf-11.inet.0 vrf-12.inet.0
                        Export table(s): vrf-12.inet.0
                        Target: 1:13      inet      unicast
                        Import table(s): vrf-12.inet.0 vrf-13.inet.0
                        Export table(s): vrf-13.inet.0

```

show route extensive

Syntax	show route extensive <destination-prefix> <logical-system (all logical-system-name)>
Syntax (EX Series Switch)	show route extensive <destination-prefix>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display extensive information about the active entries in the routing tables.
Options	none—Display all active entries in the routing table. destination-prefix—(Optional) Display active entries for the specified address or range of addresses. logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show route extensive on page 451 show route extensive (Access Route) on page 457 show route extensive (Route Reflector) on page 457
Output Fields	Table 121 on page 446 describes the output fields for the show route extensive command. Output fields are listed in the approximate order in which they appear.

Table 121: show route extensive Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.
<i>number routes</i>	Number of routes in the routing table and total number of routes in the following states: <ul style="list-style-type: none"> active (routes that are active). holddown (routes that are in the pending state before being declared inactive). hidden (routes that are not used because of a routing policy).

Table 121: show route extensive Output Fields (*continued*)

Field Name	Field Description
<i>route-destination</i> (entry, announced)	<p>Route destination (for example:10.0.0.1/24). The entry value is the number of route for this destination, and the announced value is the number of routes being announced for this destination. Sometimes the route destination is presented in another format, such as:</p> <ul style="list-style-type: none"> • MPLS-label (for example, 80001). • interface-name (for example, ge-1/0/2). • neighbor-address:control-word-status:encapsulation type:vc-id:source (Layer 2 circuit only; for example, 10.1.1.195:NoCtrlWord:1:1:Local/96). • neighbor-address—Address of the neighbor. • control-word-status—Whether the use of the control word has been negotiated for this virtual circuit: NoCtrlWord or CtrlWord. • encapsulation type—Type of encapsulation, represented by a number: (1) Frame Relay DLCI, (2) ATM AAL5 VCC transport, (3) ATM transparent cell transport, (4) Ethernet, (5) VLAN Ethernet, (6) HDLC, (7) PPP, (8) ATM VCC cell transport, (10) ATM VPC cell transport. • vc-id—Virtual circuit identifier. • source—Source of the advertisement: Local or Remote.
TSI	Protocol header information.
label stacking	<p>(Next-to-the-last-hop routing device for MPLS only) Depth of the Multiprotocol Label Switching (MPLS) label stack, where the label-popping operation is needed to remove one or more labels from the top of the stack. A pair of routes is displayed, because the pop operation is performed only when the stack depth is two or more labels.</p> <ul style="list-style-type: none"> • S=0 route indicates that a packet with an incoming label stack depth of two or more exits this router with one fewer label (the label-popping operation is performed). • If there is no S= information, the route is a normal MPLS route, which has a stack depth of 1 (the label-popping operation is not performed).
[<i>protocol, preference</i>]	<p>Protocol from which the route was learned and the preference value for the route.</p> <ul style="list-style-type: none"> • +—A plus sign indicates the active route, which is the route installed from the routing table into the forwarding table. • -—A hyphen indicates the last active route. • *—An asterisk indicates that the route is both the active and the last active route. An asterisk before a to line indicates the best subpath to the route. <p>In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, Junos OS stores the 1's complement of the LocalPref value in the Preference2 field. For example, if the LocalPref value for Route 1 is 100, the Preference2 value is -101. If the LocalPref value for Route 2 is 155, the Preference2 value is -156. Route 2 is preferred because it has a higher LocalPref value and a lower Preference2 value.</p>
Level	<p>(IS-IS only). In IS-IS, a single autonomous system (AS) can be divided into smaller groups called areas. Routing between areas is organized hierarchically, allowing a domain to be administratively divided into smaller areas. This organization is accomplished by configuring Level 1 and Level 2 intermediate systems. Level 1 systems route within an area; when the destination is outside an area, they route toward a Level 2 system. Level 2 intermediate systems route between areas and toward other ASs.</p>

Table 121: show route extensive Output Fields (*continued*)

Field Name	Field Description
Route Distinguisher	IP subnet augmented with a 64-bit prefix.
Next-hop type	Type of next hop. For a description of possible values for this field, see the Output Field table in the show route detail command.
Next-hop reference count	Number of references made to the next hop.
Flood nexthop branches exceed maximum message	Indicates that the number of flood next-hop branches exceeded the system limit of 32 branches, and only a subset of the flood next-hop branches were installed in the kernel.
Source	IP address of the route source.
Next hop	Network layer address of the directly reachable neighboring system.
via	<p>Interface used to reach the next hop. If there is more than one interface available to the next hop, the name of the interface that is actually used is followed by the word Selected. This field can also contain the following information:</p> <ul style="list-style-type: none"> Weight—Value used to distinguish primary, secondary, and fast reroute backup routes. Weight information is available when Multiprotocol Label Switching (MPLS) label-switched path (LSP) link protection, node-link protection, or fast reroute is enabled, or when the standby state is enabled for secondary paths. A lower weight value is preferred. Among routes with the same weight value, load balancing is possible. Balance—Balance coefficient indicating how traffic of unequal cost is distributed among next hops when a routing device is performing unequal-cost load balancing. This information is available when you enable Border Gateway Protocol (BGP) multipath load balancing.
Label-switched-path <i>lsp-path-name</i>	Name of the label-switched path (LSP) used to reach the next hop.
Label operation	MPLS label and operation occurring at this routing device. The operation can be pop (where a label is removed from the top of the stack), push (where another label is added to the label stack), or swap (where a label is replaced by another label).
Offset	Whether the metric has been increased or decreased by an offset value.
Interface	(Local only) Local interface name.
Protocol next hop	Network layer address of the remote routing device that advertised the prefix. This address is used to recursively derive a forwarding next hop.
<i>label-operation</i>	MPLS label and operation occurring at this routing device. The operation can be pop (where a label is removed from the top of the stack), push (where another label is added to the label stack), or swap (where a label is replaced by another label).
Indirect next hops	When present, a list of nodes that are used to resolve the path to the next-hop destination, in the order that they are resolved.

Table 121: show route extensive Output Fields (*continued*)

Field Name	Field Description
State	State of the route (a route can be in more than one state). See the Output Field table in the show route detail command.
Inactive reason	<p>If the route is inactive, the reason for its current state is indicated. Typical reasons include:</p> <ul style="list-style-type: none"> • Active preferred—Currently active route was selected over this route. • Always compare MED—Path with a lower multiple exit discriminator (MED) is available. • AS path—Shorter AS path is available. • Cisco Non-deterministic MED selection—Cisco nondeterministic MED is enabled and a path with a lower MED is available. • Cluster list length—Path with a shorter cluster list length is available. • Forwarding use only—Path is only available for forwarding purposes. • IGP metric—Path through the next hop with a lower IGP metric is available. • IGP metric type—Path with a lower OSPF link-state advertisement type is available. • Interior > Exterior > Exterior via Interior—Direct, static, IGP, or EBGP path is available. • Local preference—Path with a higher local preference value is available. • Next hop address—Path with a lower metric next hop is available. • No difference—Path from a neighbor with a lower IP address is available. • Not Best in its group—Occurs when multiple peers of the same external AS advertise the same prefix and are grouped together in the selection process. When this reason is displayed, an additional reason is provided (typically one of the other reasons listed). • Number of gateways—Path with a higher number of next hops is available. • Origin—Path with a lower origin code is available. • OSPF version—Path does not support the indicated OSPF version. • RIB preference—Route from a higher-numbered routing table is available. • Route distinguisher—64-bit prefix added to IP subnets to make them unique. • Route metric or MED comparison—Route with a lower metric or MED is available. • Route preference—Route with a lower preference value is available. • Router ID—Path through a neighbor with a lower ID is available. • Unusable path—Path is not usable because of one of the following conditions: the route is damped, the route is rejected by an import policy, or the route is unresolved. • Update source—Last tiebreaker is the lowest IP address value.
Local AS	Autonomous system (AS) number of the local routing device.
Age	How long the route has been known.
Metric	Cost value of the indicated route. For routes within an AS, the cost is determined by IGP and the individual protocol metrics. For external routes, destinations, or routing domains, the cost is determined by a preference value.
MED-plus-IGP	Metric value for BGP path selection to which the IGP cost to the next-hop destination has been added.
TTL-Action	<p>For MPLS LSPs, state of the TTL propagation attribute. Can be enabled or disabled for all RSVP-signalled and LDP-signalled LSPs or for specific VRF routing instances.</p> <p>For sample output, see show route table.</p>

Table 121: show route extensive Output Fields (*continued*)

Field Name	Field Description
Task	Name of the protocol that has added the route.
Announcement bits	List of protocols that announce this route. n-Resolve inet indicates that the route is used for route resolution for next hops found in the routing table. n is an index used by Juniper Networks customer support only.
AS path	<p>AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path originated:</p> <ul style="list-style-type: none"> • I—IGP. • E—EGP. • ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> • []—Brackets enclose the local AS number associated with the AS path if more than one AS number is configured on the routing device, or if AS path prepending is configured. • { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. • ()—Parentheses enclose a confederation. • ([])—Parentheses and brackets enclose a confederation set. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>
AS path: I <Originator>	(For route reflected output only) Originator ID attribute set by the route reflector.
VC Label	MPLS label assigned to the Layer 2 circuit virtual connection.
MTU	Maximum transmission unit (MTU) of the Layer 2 circuit.
VLAN ID	VLAN identifier of the Layer 2 circuit.
Cluster list	(For route reflected output only) Cluster ID sent by the route reflector.
Originator ID	(For route reflected output only) Address of router that originally sent the route to the route reflector.
Prefixes bound to route	Forwarding Equivalent Class (FEC) bound to this route. Applicable only to routes installed by LDP.
Communities	Community path attribute for the route. See the Output Field table in the show route detail command for all possible values for this field.
Layer2-info: encaps	Layer 2 encapsulation (for example, VPLS).
control flags	Control flags: none or Site Down.
mtu	Maximum transmission unit (MTU) information.

Table 121: show route extensive Output Fields (*continued*)

Field Name	Field Description
Label-Base, range	First label in a block of labels and label block size. A remote PE routing device uses this first label when sending traffic toward the advertising PE routing device.
status vector	Layer 2 VPN and VPLS network layer reachability information (NLRI).
Localpref	Local preference value included in the route.
Router ID	BGP router ID as advertised by the neighbor in the open message.
Primary Routing Table	In a routing table group, the name of the primary routing table in which the route resides.
Secondary Tables	In a routing table group, the name of one or more secondary tables in which the route resides.
Originating RIB	Name of the routing table whose active route was used to determine the forwarding next-hop entry in the resolution database. For example, in the case of inet.0 resolving through inet.0 and inet.3 , this field indicates which routing table, inet.0 or inet.3 , provided the best path for a particular prefix.
Node path count	Number of nodes in the path.
Forwarding nexthops	Number of forwarding next hops. The forwarding next hop is the network layer address of the directly reachable neighboring system (if applicable) and the interface used to reach it.

```

show route extensive user@host> show route extensive
inet.0: 22 destinations, 23 routes (21 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.10.0.0/16 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 29
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 1:34:06
    Task: RT
    Announcement bits (2): 0-KRT 3-Resolve tree 2
    AS path: I

10.31.1.0/30 (2 entries, 1 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 2
    Next hop: via so-0/3/0.0, selected
    State: <Active Int>
    Local AS: 69
    Age: 1:32:40
    Task: IF
    Announcement bits (1): 3-Resolve tree 2
    AS path: I

```

```

    OSPF    Preference: 10
           Next-hop reference count: 1
           Next hop: via so-0/3/0.0, selected
           State: <Int>
           Inactive reason: Route Preference
           Local AS:    69
           Age: 1:32:40   Metric: 1
           Area: 0.0.0.0
           Task: OSPF
           AS path: I

10.31.1.1/32 (1 entry, 1 announced)
  *Local    Preference: 0
           Next hop type: Local
           Next-hop reference count: 7
           Interface: so-0/3/0.0
           State: <Active NoReadvrt Int>
           Local AS:    69
           Age: 1:32:43
           Task: IF
           Announcement bits (1): 3-Resolve tree 2
           AS path: I

...

10.31.2.0/30 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.31.2.0/30 -> {10.31.1.6}
  *OSPF    Preference: 10
           Next-hop reference count: 9
           Next hop: via so-0/3/0.0
           Next hop: 10.31.1.6 via ge-3/1/0.0, selected
           State: <Active Int>
           Local AS:    69
           Age: 1:32:19   Metric: 2
           Area: 0.0.0.0
           Task: OSPF
           Announcement bits (2): 0-KRT 3-Resolve tree 2
           AS path: I

...

224.0.0.2/32 (1 entry, 1 announced)
TSI:
KRT in-kernel 224.0.0.2/32 -> {}
  *PIM     Preference: 0
           Next-hop reference count: 18
           State: <Active NoReadvrt Int>
           Local AS:    69
           Age: 1:34:08
           Task: PIM Recv
           Announcement bits (2): 0-KRT 3-Resolve tree 2
           AS path: I

...

224.0.0.22/32 (1 entry, 1 announced)
TSI:
KRT in-kernel 224.0.0.22/32 -> {}
  *IGMP    Preference: 0
           Next-hop reference count: 18

```

```

        State: <Active NoReadvrt Int>
        Local AS: 69
        Age: 1:34:06
        Task: IGMP
        Announcement bits (2): 0-KRT 3-Resolve tree 2
        AS path: I

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

10.255.70.103/32 (1 entry, 1 announced)
    State: <FlashAll>
    *RSVP Preference: 7
        Next-hop reference count: 6
        Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1, selected
        Label-switched-path green-r1-r3
        Label operation: Push 100096
        State: <Active Int>
        Local AS: 69
        Age: 1:28:12 Metric: 2
        Task: RSVP
        Announcement bits (2): 1-Resolve tree 1 2-Resolve tree 2
        AS path: I

10.255.71.238/32 (1 entry, 1 announced)
    State: <FlashAll>
    *RSVP Preference: 7
        Next-hop reference count: 6
        Next hop: via so-0/3/0.0 weight 0x1, selected
        Label-switched-path green-r1-r2
        State: <Active Int>
        Local AS: 69
        Age: 1:28:12 Metric: 1
        Task: RSVP
        Announcement bits (2): 1-Resolve tree 1 2-Resolve tree 2
        AS path: I

private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
...

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

47.0005.80ff.f800.0000.0108.0001.0102.5507.1052/152 (1 entry, 0 announced)
    *Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 1
        Next hop: via lo0.0, selected
        State: <Active Int>
        Local AS: 69
        Age: 1:34:07
        Task: IF
        AS path: I

mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)

0 (1 entry, 1 announced)
TSI:
KRT in-kernel 0 /36 -> {}
    *MPLS Preference: 0
        Next hop type: Receive
        Next-hop reference count: 6

```

```

        State: <Active Int>
        Local AS: 69
        Age: 1:34:08 Metric: 1
        Task: MPLS
        Announcement bits (1): 0-KRT
        AS path: I

...

mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
299776 (1 entry, 1 announced)
TSI:
KRT in-kernel 299776 /52 -> {Flood}
    *RSVP Preference: 7
        Next hop type: Flood
        Next-hop reference count: 130
        Flood nexthop branches exceed maximum
        Address: 0x8ea65d0

...

800010 (1 entry, 1 announced)

TSI:
KRT in-kernel 800010 /36 -> {vt-3/2/0.32769}
    *VPLS Preference: 7
        Next-hop reference count: 2
        Next hop: via vt-3/2/0.32769, selected
        Label operation: Pop
        State: <Active Int>
        Age: 1:31:53
        Task: Common L2 VC
        Announcement bits (1): 0-KRT
        AS path: I

vt-3/2/0.32769 (1 entry, 1 announced)
TSI:
KRT in-kernel vt-3/2/0.32769.0 /16 -> {indirect(1048574)}
    *VPLS Preference: 7
        Next-hop reference count: 2
        Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1, selected
        Label-switched-path green-r1-r3
        Label operation: Push 800012, Push 100096(top)
        Protocol next hop: 10.255.70.103
        Push 800012
        Indirect next hop: 87272e4 1048574
        State: <Active Int>
        Age: 1:31:53 Metric2: 2
        Task: Common L2 VC
        Announcement bits (2): 0-KRT 1-Common L2 VC
        AS path: I
        Communities: target:11111:1 Layer2-info: encaps:VPLS,
        control flags:, mtu: 0
        Indirect next hops: 1
            Protocol next hop: 10.255.70.103 Metric: 2
            Push 800012
            Indirect next hop: 87272e4 1048574
            Indirect path forwarding next hops: 1
                Next hop: 10.31.1.6 via ge-3/1/0.0 weight 0x1
                10.255.70.103/32 Originating RIB: inet.3
                Metric: 2 Node path count: 1
                Forwarding nexthops: 1

```

```

                                Nexthop: 10.31.1.6 via ge-3/1/0.0

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)

abcd::10:255:71:52/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active Int>
    Local AS: 69
    Age: 1:34:07
    Task: IF
    AS path: I

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:34:07
    Task: IF
    AS path: I

ff02::2/128 (1 entry, 1 announced)
TSI:
KRT in-kernel ff02::2/128 -> {}
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:34:08
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::d/128 (1 entry, 1 announced)
TSI:
KRT in-kernel ff02::d/128 -> {}
  *PIM Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:34:08
    Task: PIM Recv6
    Announcement bits (1): 0-KRT
    AS path: I

ff02::16/128 (1 entry, 1 announced)
TSI:
KRT in-kernel ff02::16/128 -> {}
  *MLD Preference: 0
    Next-hop reference count: 18
    State: <Active NoReadvrt Int>
    Local AS: 69
    Age: 1:34:06
    Task: MLD
    Announcement bits (1): 0-KRT
    AS path: I

```

```

private.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

fe80::280:42ff:fe10:f179/128 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.16385, selected
    State: <Active NoReadvrt Int>
    Age: 1:34:07
    Task: IF
    AS path: I

green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)

10.255.70.103:1:3:1/96 (1 entry, 1 announced)
  *BGP Preference: 170/-101
    Route Distinguisher: 10.255.70.103:1
    Next-hop reference count: 7
    Source: 10.255.70.103
    Protocol next hop: 10.255.70.103
    Indirect next hop: 2 no-forward
    State: <Secondary Active Int Ext>
    Local AS: 69 Peer AS: 69
    Age: 1:28:12 Metric2: 1
    Task: BGP_69.10.255.70.103+179
    Announcement bits (1): 0-green-l2vpn
    AS path: I
    Communities: target:11111:1 Layer2-info: encaps:VPLS,
    control flags:, mtu: 0
    Label-base: 800008, range: 8
    Localpref: 100
    Router ID: 10.255.70.103
    Primary Routing Table bgp.l2vpn.0

10.255.71.52:1:1:1/96 (1 entry, 1 announced)
TSI:
Page 0 idx 0 Type 1 val 8699540
  *L2VPN Preference: 170/-1
    Next-hop reference count: 5
    Protocol next hop: 10.255.71.52
    Indirect next hop: 0 -
    State: <Active Int Ext>
    Age: 1:34:03 Metric2: 1
    Task: green-l2vpn
    Announcement bits (1): 1-BGP.0.0.0+179
    AS path: I
    Communities: Layer2-info: encaps:VPLS, control flags:Site-Down,
    mtu: 0
    Label-base: 800016, range: 8, status-vector: 0x9F

10.255.71.52:1:5:1/96 (1 entry, 1 announced)
TSI:
Page 0 idx 0 Type 1 val 8699528
  *L2VPN Preference: 170/-101
    Next-hop reference count: 5
    Protocol next hop: 10.255.71.52
    Indirect next hop: 0 -
    State: <Active Int Ext>
    Age: 1:34:03 Metric2: 1
    Task: green-l2vpn

```

```

Announcement bits (1): 1-BGP.0.0.0+179
AS path: I
Communities: Layer2-info: encaps:VPLS, control flags:, mtu: 0
Label-base: 800008, range: 8, status-vector: 0x9F

...

12circuit.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

TSI:

10.245.255.63:CtrlWord:4:3:Local/96 (1 entry, 1 announced)
  *L2CKT Preference: 7
    Next hop: via so-1/1/2.0 weight 1, selected
    Label-switched-path my-lsp
    Label operation: Push 100000[0]
    Protocol next hop: 10.245.255.63 Indirect next hop: 86af000 296
    State: <Active Int>
    Local AS: 99
    Age: 10:21
    Task: 12 circuit
    Announcement bits (1): 0-LDP
    AS path: I
    VC Label 100000, MTU 1500, VLAN ID 512

show route extensive user@host> show route 13.160.0.102 extensive
  (Access Route) inet.0: 39256 destinations, 39258 routes (39255 active, 0 holddown, 1 hidden)
                  13.160.0.102/32 (1 entry, 1 announced)
                  TSI:
                  KRT in-kernel 13.160.0.102/32 -> {13.160.0.2}
                  OSPF area : 0.0.0.0, LSA ID : 13.160.0.102, LSA type : Extern
                  *Access Preference: 13
                    Next-hop reference count: 78472
                    Next hop: 13.160.0.2 via fe-0/0/0.0, selected
                    State: <Active Int>
                    Age: 12
                    Task: RPD Unix Domain Server./var/run/rpd_serv.local
                    Announcement bits (2): 0-KRT 1-OSPFv2
                    AS path: I

show route extensive user@host> show route extensive
  (Route Reflector) 1.0.0.0/8 (1 entry, 1 announced)

                  TSI:
                  KRT in-kernel 1.0.0.0/8 -> {indirect(40)}
                  *BGP Preference: 170/-101
                    Source: 192.168.4.214
                    Protocol next hop: 207.17.136.192 Indirect next hop: 84ac908 40
                    State: <Active Int Ext>
                    Local AS: 10458 Peer AS: 10458
                    Age: 3:09 Metric: 0 Metric2: 0
                    Task: BGP_10458.192.168.4.214+1033
                    Announcement bits (2): 0-KRT 4-Resolve inet.0
                    AS path: 3944 7777 I <Originator>
                    Cluster list: 1.1.1.1
                    Originator ID: 10.255.245.88
                    Communities: 7777:7777
                    Localpref: 100
                    Router ID: 4.4.4.4
                    Indirect next hops: 1
                      Protocol next hop: 207.17.136.192 Metric: 0

```

```
Indirect next hop: 84ac908 40
Indirect path forwarding next hops: 0
Next hop type: Discard
```


show route flow validation

Syntax	show route flow validation <brief detail> <ip-prefix> <table <i>table-name</i> > <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route flow validation <brief detail> <ip-prefix> <table <i>table-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display flow route information.
Options	<p>none—Display flow route information.</p> <p>brief detail—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>ip-prefix—(Optional) IP address for the flow route.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>table <i>table-name</i>—(Optional) Name of the flow route table.</p>
Required Privilege Level	view
List of Sample Output	show route flow validation on page 460
Output Fields	Table 122 on page 459 lists the output fields for the show route flow validation command. Output fields are listed in the approximate order in which they appear.

Table 122: show route flow validation Output Fields


Field Name	Field Description	Level of Output
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).	All levels
<i>prefix</i>	Route address.	All levels
Active unicast route	Active route in the routing table.	All levels
Dependent flow destinations	Number of flows for which there are routes in the routing table.	All levels
Origin	Source of the route flow.	All levels

Table 122: show route flow validation Output Fields (*continued*)

Field Name	Field Description	Level of Output
Neighbor AS	Autonomous system identifier of the neighbor.	All levels
Flow destination	Number of entries and number of destinations that match the route flow.	All levels
Unicast best match	Destination that is the best match for the route flow.	All levels
Flags	Information about the route flow.	All levels

```
show route flow validation user@host> show route flow validation
inet.0:
10.0.5.0/24Active unicast route
Dependent flow destinations: 1
Origin: 192.168.224.218, Neighbor AS: 65001
Flow destination (3 entries, 1 match origin)
Unicast best match: 10.0.5.0/24
Flags: SubtreeApex Consistent
```

show route forwarding-table

Syntax	<pre>show route forwarding-table <detail extensive summary> <all>; <ccc interface-name> <destination> <family family matching matching> <label name> <multicast> <table (default routing-table-name)> <vpn vpn></pre>
Syntax (Routing Matrix)	<pre>show route forwarding-table <detail extensive summary> <all>; <ccc interface-name> <destination> <family family matching matching> <label name> <lcc number> <multicast> <table routing-table-name> <vpn vpn></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>all option introduced in Junos OS Release 9.6.</p>
Description	<p>Display the Routing Engine's forwarding table, including the network-layer prefixes and their next hops. This command is used to help verify that the routing protocol process has relayed the correction information to the forwarding table. The Routing Engine constructs and maintains one or more routing tables. From the routing tables, the Routing Engine derives a table of active routes, called the forwarding table.</p>
	<div>  <p>NOTE: The Routing Engine copies the forwarding table to the Packet Forwarding Engine, the part of the router that is responsible for forwarding packets. To display the entries in the Packet Forwarding Engine's forwarding table, use the <code>show pfe route</code> command. For more information, see the <i>Junos System Basics and Services Command Reference</i>.</p> </div>
Options	<p>none—Display the routes in the forwarding tables. By default, the show route forwarding-table command does not display information about private, or internal, forwarding tables.</p> <p>detail extensive summary—(Optional) Display the specified level of output.</p> <p>all—(Optional) Display routing table entries for all forwarding tables, including private, or internal, tables.</p>

`ccc interface-name`—(Optional) Display route entries for the specified circuit cross-connect interface.

`destination`—(Optional) Destination prefix.

`family family`—(Optional) Display routing table entries for the specified family: **inet**, **inet6**, **iso**, **mpls**, **tnp**, **unix**, or **vpls**.

`label name`—(Optional) Display route entries for the specified label.

`lcc number`—(Routing matrix only) (Optional) On a routing matrix composed of a TX Matrix Plus router and T640 routers configured in the routing matrix, display information for the specified T640 router (or line-card chassis) connected to the TX Matrix router. On a routing matrix composed of the TX Matrix Plus router and T1600 routers configured in the routing matrix, display information for the specified T1600 router (or line-card chassis) connected to the TX Matrix Plus router. Replace **number** with a value from 0 through 3.

`matching matching`—(Optional) Display routing table entries matching the specified prefix or prefix length.

`multicast`—(Optional) Display routing table entries for multicast routes.

`table (default | routing-table-name)`—(Optional) Display route entries for all the routing tables in the main routing instance or for the specified routing table.

`vpn vpn`—(Optional) Display routing table entries for a specified VPN.

Required Privilege Level view

List of Sample Output

- `show route forwarding-table` on page 465
- `show route forwarding-table detail` on page 466
- `show route forwarding-table destination extensive (Weights and Balances)` on page 467
- `show route forwarding-table extensive` on page 467
- `show route forwarding-table extensive (RPF)` on page 468
- `show route forwarding-table family mpls` on page 469
- `show route forwarding-table family vpls` on page 469
- `show route forwarding-table family vpls extensive` on page 469
- `show route forwarding-table vpn` on page 471

Output Fields Table 123 on page 462 lists the output fields for the `show route forwarding-table` command. Output fields are listed in the approximate order in which they appear. Field names may be abbreviated (as shown in parentheses) when no level of output is specified, or when the **detail** keyword is used instead of the **extensive** keyword.

Table 123: show route forwarding-table Output Fields

Field Name	Field Description	Level of Output
Routing table	Name of the routing table (for example, inet , inet6 , mpls).	All levels
Address family	Address family (for example, IP , IPv6 , ISO , MPLS , and VPLS).	All levels

Table 123: show route forwarding-table Output Fields (*continued*)

Field Name	Field Description	Level of Output
Destination	Destination of the route.	detail extensive
Route Type (Type)	How the route was placed into the forwarding table. When the detail keyword is used, the route type might be abbreviated (as shown in parentheses): <ul style="list-style-type: none"> • cloned (clon)—(TCP or multicast only) Cloned route. • destination (dest)—Remote addresses directly reachable through an interface. • destination down (iddn)—Destination route for which the interface is unreachable. • interface cloned (ifcl)—Cloned route for which the interface is unreachable. • route down (ifdn)—Interface route for which the interface is unreachable. • ignore (ignr)—Ignore this route. • interface (intf)—Installed as a result of configuring an interface. • permanent (perm)—Routes installed by the kernel when the routing table is initialized. • user—Routes installed by the routing protocol process or as a result of the configuration. 	All levels
Route Reference (RtRef)	Number of routes to reference.	detail extensive
Flags	Route type flags: <ul style="list-style-type: none"> • none—No flags are enabled. • accounting—Route has accounting enabled. • cached—Cache route. • incoming-iface<i>interface-number</i>—Check against incoming interface. • prefix load balance—Load balancing is enabled for this prefix. • rt nh decoupled—Route has been decoupled from the next hop to the destination. • sent to PFE—Route has been sent to the Packet Forwarding Engine. • static—Static route. 	extensive
Next hop	IP address of the next hop to the destination.	detail extensive

Table 123: show route forwarding-table Output Fields (*continued*)

Field Name	Field Description	Level of Output
Next hop Type (Type)	<p>Next-hop type. When the detail keyword is used, the next-hop type might be abbreviated (as indicated in parentheses):</p> <ul style="list-style-type: none"> • broadcast (bcst)—Broadcast. • deny—Deny. • hold—Next hop is waiting to be resolved into a unicast or multicast type. • indexed (idxd)—Indexed next hop. • indirect (indr)—Indirect next hop. • local (locl)—Local address on an interface. • routed multicast (mcrst)—Regular multicast next hop • multicast (mcst)—Wire multicast next hop (limited to the LAN). • multicast discard (mdsc)—Multicast discard. • multicast group (mgrp) —Multicast group member. • receive (rcv)—Receive. • reject (rjct) Discard. An ICMP unreachable message was sent. • resolve (rslv)—Resolving the next hop. • unicast (ucst)—Unicast. • unilist (ulst)—List of unicast next hops. A packet sent to this next hop goes to any next hop in the list. 	detail extensive
Index	Software index of the next hop that is used to route the traffic for a given prefix.	detail extensive none
Route interface-index	Logical interface index from which the route is learned. For example, for interface routes, this is the logical interface index of the route itself. For static routes, this field is zero. For routes learned through routing protocols, this is the logical interface index from which the route is learned.	extensive
Reference (NhRef)	Number of routes that refer to this next hop.	none detail extensive
Next-hop interface (Netif)	Interface used to reach the next hop.	none detail extensive
Weight	Value used to distinguish primary, secondary, and fast reroute backup routes. Weight information is available when Multiprotocol Label Switching (MPLS) label-switched path (LSP) link protection, node-link protection, or fast reroute is enabled, or when the standby state is enabled for secondary paths. A lower weight value is preferred. Among routes with the same weight value, load balancing is possible (see the Balance field description).	extensive
Balance	Balance coefficient indicating how traffic of unequal cost is distributed among next hops when a router is performing unequal-cost load balancing. This information is available when you enable Border Gateway Protocol (BGP) multipath load balancing.	extensive
RPF interface	List of interfaces from which the prefix can be accepted. Reverse path forwarding (RPF) information is displayed only when rpf-check is configured on the interface.	extensive

```

show route forwarding-table user@host> show route forwarding-table
Routing table: default.inet
Internet:
Destination      Type RtRef Next hop          Type Index NhRef Netif
default          perm  0                rjct  46    4
0.0.0.0/32       perm  0                dscd  44    1
1.1.1.0/24       ifdn  0                rslv  608   1 ge-2/0/1.0
1.1.1.0/32       iddn  0 1.1.1.0         recv  606   1 ge-2/0/1.0
1.1.1.1/32       user  0                rjct  46    4
1.1.1.1/32       intf  0 1.1.1.1         locl  607   2
1.1.1.1/32       iddn  0 1.1.1.1         locl  607   2
1.1.1.255/32     iddn  0 ff:ff:ff:ff:ff:ff bcst  605   1 ge-2/0/1.0
10.0.0.0/24      intf  0                rslv  616   1 ge-2/0/0.0
10.0.0.0/32      dest  0 10.0.0.0         recv  614   1 ge-2/0/0.0
10.0.0.1/32      intf  0 10.0.0.1         locl  615   2
10.0.0.1/32      dest  0 10.0.0.1         locl  615   2
10.0.0.255/32    dest  0 10.0.0.255       bcst  613   1 ge-2/0/0.0
10.1.1.0/24      ifdn  0                rslv  612   1 ge-2/0/1.0
10.1.1.0/32      iddn  0 10.1.1.0         recv  610   1 ge-2/0/1.0
10.1.1.1/32      user  0                rjct  46    4
10.1.1.1/32      intf  0 10.1.1.1         locl  611   2
10.1.1.1/32      iddn  0 10.1.1.1         locl  611   2
10.1.1.255/32    iddn  0 ff:ff:ff:ff:ff:ff bcst  609   1 ge-2/0/1.0
10.209.0.0/16    user  0 10.209.63.254    ucst  419   20 fxp0.0
10.209.0.0/16    user  1 0:12:1e:ca:98:0  ucst  419   20 fxp0.0
10.209.0.0/18    intf  0                rslv  418   1 fxp0.0
10.209.0.0/32    dest  0 10.209.0.0       recv  416   1 fxp0.0
10.209.2.131/32  intf  0 10.209.2.131     locl  417   2
10.209.2.131/32  dest  0 10.209.2.131     locl  417   2
10.209.17.55/32  dest  0 0:30:48:5b:78:d2 ucst  435   1 fxp0.0
10.209.63.42/32  dest  0 0:23:7d:58:92:ca ucst  434   1 fxp0.0
10.209.63.254/32 dest  0 0:12:1e:ca:98:0  ucst  419   20 fxp0.0
10.209.63.255/32 dest  0 10.209.63.255    bcst  415   1 fxp0.0
10.227.0.0/16    user  0 10.209.63.254    ucst  419   20 fxp0.0

...

Routing table: iso
ISO:
Destination      Type RtRef Next hop          Type Index NhRef Netif
default          perm  0                rjct  27    1
47.0005.80ff.f800.0000.0108.0003.0102.5524.5220.00
intf  0                locl  28    1

Routing table: inet6
Internet6:
Destination      Type RtRef Next hop          Type Index NhRef Netif
default          perm  0                rjct  6     1
ff00::/8         perm  0                mdsc  4     1
ff02::1/128      perm  0 ff02::1          mcst  3     1

Routing table: ccc
MPLS:
Interface.Label  Type RtRef Next hop          Type Index NhRef Netif
default          perm  0                rjct  16    1
100004(top)fe-0/0/1.0

```

```

show route forwarding-table detail
user@host> show route forwarding-table detail
Routing table: inet
Internet:
Destination      Type RtRef Next hop      Type Index NhRef Netif
default          user  2 0:90:69:8e:b1:1b ucst  132   4 fxp0.0
default          perm  0                               rjct   14   1
10.1.1.0/24      intf  0 ff.3.0.21      ucst  322   1 so-5/3/0.0
10.1.1.0/32      dest  0 10.1.1.0       recv  324   1 so-5/3/0.0
10.1.1.1/32      intf  0 10.1.1.1       locl  321   1
10.1.1.255/32    dest  0 10.1.1.255     bcst  323   1 so-5/3/0.0
10.21.21.0/24    intf  0 ff.3.0.21      ucst  326   1 so-5/3/0.0
10.21.21.0/32    dest  0 10.21.21.0     recv  328   1 so-5/3/0.0
10.21.21.1/32    intf  0 10.21.21.1     locl  325   1
10.21.21.255/32  dest  0 10.21.21.255   bcst  327   1 so-5/3/0.0
127.0.0.1/32     intf  0 127.0.0.1      locl  320   1
172.17.28.19/32  clon  1 192.168.4.254  ucst  132   4 fxp0.0
172.17.28.44/32  clon  1 192.168.4.254  ucst  132   4 fxp0.0

...

Routing table: private1__inet
Internet:
Destination      Type RtRef Next hop      Type Index NhRef Netif
default          perm  0                               rjct   46   1
10.0.0.0/8       intf  0                               rslv  136   1 fxp1.0
10.0.0.0/32      dest  0 10.0.0.0       recv  134   1 fxp1.0
10.0.0.4/32      intf  0 10.0.0.4       locl  135   2
10.0.0.4/32      dest  0 10.0.0.4       locl  135   2

...

Routing table: iso
ISO:
Destination      Type RtRef Next hop      Type Index NhRef Netif
default          perm  0                               rjct   38   1

Routing table: inet6
Internet6:
Destination      Type RtRef Next hop      Type Index NhRef Netif
default          perm  0                               rjct   22   1
ff00::/8         perm  0                               mdsc   21   1
ff02::1/128      perm  0 ff02::1       mcst   17   1

...

Routing table: mpls
MPLS:
Destination      Type RtRef Next hop      Type Index NhRef Netif
default          perm  0                               rjct  28   1

```



```

show route forwarding-table destination extensive
(Weights and Balances)
user@host> show route forwarding-table destination 3.4.2.1 extensive
Routing table: inet [Index 0]
Internet:

Destination: 3.4.2.1/32
Route type: user
Route reference: 0
Flags: sent to PFE
Next-hop type: unicast
Next-hop: 4.4.4.4
Next-hop type: unicast
Next-hop interface: so-1/1/0.0
Next-hop: 145.12.1.2
Next-hop type: unicast
Next-hop interface: so-0/1/2.0
Route interface-index: 0
Index: 262143 Reference: 1
Index: 335 Reference: 2
Weight: 22 Balance: 3
Index: 337 Reference: 2
Weight: 33 Balance: 33

show route forwarding-table extensive
user@host> show route forwarding-table extensive
Routing table: inet [Index 0]
Internet:

Destination: default
Route type: user
Route reference: 2
Flags: sent to PFE
Next-hop: 0:90:69:8e:b1:1b
Next-hop type: unicast
Next-hop interface: fxp0.0
Route interface-index: 0
Index: 132 Reference: 4

Destination: default
Route type: permanent
Route reference: 0
Flags: none
Next-hop type: reject
Route interface-index: 0
Index: 14 Reference: 1

Destination: 127.0.0.1/32
Route type: interface
Route reference: 0
Flags: sent to PFE
Next-hop: 127.0.0.1
Next-hop type: local
Route interface-index: 0
Index: 320 Reference: 1

...

Routing table: private1__inet [Index 1]
Internet:

Destination: default
Route type: permanent
Route reference: 0
Flags: sent to PFE
Next-hop type: reject
Route interface-index: 0
Index: 46 Reference: 1

Destination: 10.0.0.0/8
Route type: interface
Route reference: 0
Flags: sent to PFE
Next-hop type: resolve
Next-hop interface: fxp1.0
Route interface-index: 3
Index: 136 Reference: 1

...

```

```

Routing table: iso [Index 0]
ISO:

Destination: default
Route type: permanent
Route reference: 0
Flags: sent to PFE
Next-hop type: reject
Route interface-index: 0
Index: 38      Reference: 1

Routing table: inet6 [Index 0]
Internet6:

Destination: default
Route type: permanent
Route reference: 0
Flags: sent to PFE
Next-hop type: reject
Route interface-index: 0
Index: 22      Reference: 1

Destination: ff00::/8
Route type: permanent
Route reference: 0
Flags: sent to PFE
Next-hop type: multicast discard
Route interface-index: 0
Index: 21      Reference: 1

...

Routing table: private1__inet6 [Index 1]
Internet6:

Destination: default
Route type: permanent
Route reference: 0
Flags: sent to PFE
Next-hop type: reject
Route interface-index: 0
Index: 54      Reference: 1

Destination: fe80::2a0:a5ff:fe3d:375/128
Route type: interface
Route reference: 0
Flags: sent to PFE
Next-hop: fe80::2a0:a5ff:fe3d:375
Next-hop type: local
Route interface-index: 0
Index: 75      Reference: 1

...

```

**show route
forwarding-table
extensive (RPF)**

The next example is based on the following configuration, which enables an RPF check on all routes that are learned from this interface, including the interface route:

```

so-1/1/0 {
  unit 0 {
    family inet {
      rpf-check;
      address 15.95.1.2/30;
    }
  }
}

```

```

user@host> show route forwarding-table extensive
Routing table: inet [Index 0]
Internet:
...

```

```

...
Destination: 15.95.1.3/32
Route type: destination
Route reference: 0
Flags: sent to PFE
Next-hop: 15.95.1.3
Next-hop type: broadcast
Next-hop interface: so-1/1/0.0
RPF interface: so-1/1/0.0
Route interface-index: 67
Index: 328
Reference: 1

show route forwarding-table family mpls
user@host> show route forwarding-table family mpls
Routing table: mpls
MPLS:
Destination      Type RtRef Next hop      Type Index NhRef Netif
default          perm  0
0                user  0
1                user  0
2                user  0
100000           user  0 10.31.1.6
800002           user  0
vt-0/3/0.32770  (VPLS)
                  user  0
                  indr  351  4
                  Push 800000, Push 100002(top)
so-0/0/0.0

show route forwarding-table family vpls
user@host> show route forwarding-table family vpls
Routing table: green.vpls
VPLS:
Destination      Type RtRef Next hop      Type Index NhRef Netif
default          dym  0
default          perm  0
fe-0/1/0.0       dym  0
00:90:69:0c:20:1f/48
                  <<<<<Remote CE
                  dym  0
                  indr  351  4
                  Push 800000, Push 100002(top)
so-0/0/0.0
00:90:69:85:b0:1f/48
                  <<<<<Local CE
                  dym  0
                  ucst  354  2 fe-0/1/0.0

show route forwarding-table family vpls extensive
user@host> show route forwarding-table family vpls extensive
Routing table: green.vpls [Index 2]
VPLS:
Destination: default
Route type: dynamic
Route reference: 0
Flags: sent to PFE
Next-hop type: flood
Next-hop type: unicast
Next-hop interface: fe-0/1/3.0
Next-hop type: unicast
Next-hop interface: fe-0/1/2.0
Route interface-index: 72
Index: 289
Reference: 1
Index: 291
Reference: 3
Index: 290
Reference: 3

Destination: default
Route type: permanent
Route reference: 0
Flags: none
Route interface-index: 0

```

```

Next-hop type: discard                                Index: 341      Reference: 1

Destination: fe-0/1/2.0
Route type: dynamic
Route reference: 0                                    Route interface-index: 69
Flags: sent to PFE
Next-hop type: flood                                Index: 293      Reference: 1
Next-hop type: indirect                              Index: 363      Reference: 4
Next-hop type: Push 800016
Next-hop interface: at-1/0/1.0
Next-hop type: indirect                              Index: 301      Reference: 5
Next hop: 10.31.3.2
Next-hop type: Push 800000
Next-hop interface: fe-0/1/1.0
Next-hop type: unicast                              Index: 291      Reference: 3
Next-hop interface: fe-0/1/3.0

Destination: fe-0/1/3.0
Route type: dynamic
Route reference: 0                                    Route interface-index: 70
Flags: sent to PFE
Next-hop type: flood                                Index: 292      Reference: 1
Next-hop type: indirect                              Index: 363      Reference: 4
Next-hop type: Push 800016
Next-hop interface: at-1/0/1.0
Next-hop type: indirect                              Index: 301      Reference: 5
Next hop: 10.31.3.2
Next-hop type: Push 800000
Next-hop interface: fe-0/1/1.0
Next-hop type: unicast                              Index: 290      Reference: 3
Next-hop interface: fe-0/1/2.0

Destination: 10:00:00:01:01:01/48
Route type: dynamic
Route reference: 0                                    Route interface-index: 70
Flags: sent to PFE, prefix load balance
Next-hop type: unicast                              Index: 291      Reference: 3
Next-hop interface: fe-0/1/3.0
Route used as destination:
  Packet count:          6640   Byte count:          675786
Route used as source:
  Packet count:          6894   Byte count:          696424

Destination: 10:00:00:01:01:01/48
Route type: dynamic
Route reference: 0                                    Route interface-index: 69
Flags: sent to PFE, prefix load balance
Next-hop type: unicast                              Index: 290      Reference: 3
Next-hop interface: fe-0/1/2.0
Route used as destination:
  Packet count:           96   Byte count:           8079
Route used as source:
  Packet count:          296   Byte count:          24955

Destination: 10:00:00:01:03:05/48
Route type: dynamic
Route reference: 0                                    Route interface-index: 74
Flags: sent to PFE, prefix load balance
Next-hop type: indirect                              Index: 301      Reference: 5
Next hop: 10.31.3.2

```

Next-hop type: Push 800000
 Next-hop interface: fe-0/1/1.0

**show route
 forwarding-table vpn**

user@host> **show route forwarding-table vpn VPN-A**

Routing table:: VPN-A.inet

Internet:

Destination	Type	RtRef	Nexthop	Type	Index	NhRef	Netif
default	perm	0		rjct	4	4	
10.39.10.20/30	intf	0	ff.3.0.21	ucst	40	1	
so-0/0/0.0							
10.39.10.21/32	intf	0	10.39.10.21	loc1	36	1	
10.255.14.172/32	user	0		ucst	69	2	
so-0/0/0.0							
10.255.14.175/32	user	0		indr	81	3	
				Push	100004		Push
100004(top) so-1/0/0.0							
224.0.0.0/4	perm	2		mdsc	5	3	
224.0.0.1/32	perm	0	224.0.0.1	mcst	1	8	
224.0.0.5/32	user	1	224.0.0.5	mcst	1	8	
255.255.255.255/32	perm	0		bcst	2	3	

show route hidden

Syntax	show route hidden <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display only hidden route information. A hidden route is unusable, even if it is the best path.
Options	<p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route hidden on page 472</p> <p>show route hidden detail on page 473</p> <p>show route hidden extensive on page 473</p> <p>show route hidden terse on page 473</p>
Output Fields	For information about output fields, see the output field table for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route hidden	<pre> user@host> show route hidden inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 127.0.0.1/32 [Direct/0] 04:26:38 > via lo0.0 private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden) red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 10.5.5.5/32 [BGP/170] 03:44:10, localpref 100, from 10.4.4.4 AS path: 100 I Unusable 10.12.1.0/24 [BGP/170] 03:44:10, localpref 100, from 10.4.4.4 AS path: 100 I Unusable 10.12.80.4/30 [BGP/170] 03:44:10, localpref 100, from 10.4.4.4 AS path: I Unusable ... </pre>

```

show route hidden detail user@host> show route hidden detail
inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete
127.0.0.1/32 (1 entry, 0 announced)
    Direct Preference: 0
        Next hop type: Interface
        Next-hop reference count: 1
        Next hop: via lo0.0, selected
        State: <Hidden Martian Int>
        Local AS: 1
        Age: 4:27:37
        Task: IF
        AS path: I

private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden)
Restart Complete

10.5.5.5/32 (1 entry, 0 announced)
    BGP Preference: 170/-101
        Route Distinguisher: 10.4.4.4:4
        Next hop type: Unusable
        Next-hop reference count: 6
        State: <Secondary Hidden Int Ext>
        Local AS: 1 Peer AS: 1
        Age: 3:45:09
        Task: BGP_1.10.4.4.4+2493
        AS path: 100 I
        Communities: target:1:999
        VPN Label: 100064
        Localpref: 100
        Router ID: 10.4.4.4
        Primary Routing Table bgp.13vpn.0

...

show route hidden extensive The output for the show route hidden extensive command is identical to that of the show
                             route hidden detail command. For sample output, see show route hidden detail on
                             page 473.

show route hidden terse user@host> show route hidden terse
inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
127.0.0.1/32      D 0                                >lo0.0

private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
10.5.5.5/32        B 170      100          Unusable      100 I
10.12.1.0/24       B 170      100          Unusable      100 I

```

```

10.12.80.4/30      B 170      100      Unusable      I

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

bgp.l3vpn.0: 3 destinations, 3 routes (0 active, 0 holddown, 3 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
10.4.4.4:10.5.5.5/32
                    B 170      100      Unusable      100 I
10.4.4.4:10.12.1.0/24
                    B 170      100      Unusable      100 I
10.4.4.4:10.12.80.4/30
                    B 170      100      Unusable      I

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```


show route inactive-path

Syntax	show route inactive-path <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route inactive-path <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display routes for destinations that have no active route. An inactive route is a route that was not selected as the best path.
Options	<p>none—Display all inactive routes.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route inactive-path on page 475</p> <p>show route inactive-path detail on page 476</p> <p>show route inactive-path extensive on page 477</p> <p>show route inactive-path terse on page 477</p>
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route inactive-path	<pre> user@host> show route inactive-path inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 10.12.100.12/30 [OSPF/10] 03:57:28, metric 1 > via so-0/3/0.0 private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both 10.0.0.0/8 [Direct/0] 04:39:56 > via fxp1.0 red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden) Restart Complete + = Active Route, - = Last Active, * = Both </pre>

**show route
inactive-path detail**

```

10.12.80.0/30      [BGP/170] 04:38:17, localpref 100
                  AS path: 100 I
                  > to 10.12.80.1 via ge-6/3/2.0

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

bgp.l3vpn.0: 3 destinations, 3 routes (0 active, 0 holddown, 3 hidden)
Restart Complete

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

user@host> show route inactive-path detail

inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete

10.12.100.12/30 (2 entries, 1 announced)
  OSPF   Preference: 10
         Next-hop reference count: 1
         Next hop: via so-0/3/0.0, selected
         State: <Int>
         Inactive reason: Route Preference
         Local AS:      1
         Age: 3:58:24   Metric: 1
         Area: 0.0.0.0
         Task: OSPF
         AS path: I

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

10.0.0.0/8 (2 entries, 0 announced)
  Direct Preference: 0
         Next hop type: Interface
         Next-hop reference count: 1
         Next hop: via fxp1.0, selected
         State: <NotBest Int>
         Inactive reason: No difference
         Age: 4:40:52
         Task: IF
         AS path: I

red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden)
Restart Complete

10.12.80.0/30 (2 entries, 1 announced)
  BGP   Preference: 170/-101
       Next-hop reference count: 6
       Source: 10.12.80.1
       Next hop: 10.12.80.1 via ge-6/3/2.0, selected
       State: <Ext>
       Inactive reason: Route Preference
       Peer AS: 100
       Age: 4:39:13
       Task: BGP_100.10.12.80.1+179

```

```
AS path: 100 I
Localpref: 100
Router ID: 10.0.0.0
```

show route inactive-path extensive The output for the **show route inactive-path extensive** command is identical to that of the **show route inactive-path detail** command. For sample output, see **show route inactive-path detail** on page 476.

show route inactive-path terse user@host> **show route inactive-path terse**

```
inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
  10.12.100.12/30   0  10           1           >so-0/3/0.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
  10.0.0.0/8        D   0           0           >fxp1.0

red.inet.0: 6 destinations, 8 routes (4 active, 0 holddown, 3 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
  10.12.80.0/30     B 170          100          >10.12.80.1    100 I

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

bgp.l3vpn.0: 3 destinations, 3 routes (0 active, 0 holddown, 3 hidden)
Restart Complete

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```

show route inactive-prefix

Syntax	show route inactive-prefix <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route inactive-prefix <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display inactive route destinations in each routing table.
Options	<p>none—Display all inactive route destination.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route inactive-prefix on page 478</p> <p>show route inactive-prefix detail on page 478</p> <p>show route inactive-prefix extensive on page 479</p> <p>show route inactive-prefix terse on page 479</p>
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route inactive-prefix	<pre> user@host> show route inactive-prefix inet.0: 14 destinations, 14 routes (13 active, 0 holddown, 1 hidden) + = Active Route, - = Last Active, * = Both 127.0.0.1/32 [Direct/0] 00:04:54 > via lo0.0 </pre>
show route inactive-prefix detail	<pre> user@host> show route inactive-prefix detail inet.0: 14 destinations, 14 routes (13 active, 0 holddown, 1 hidden) 127.0.0.1/32 (1 entry, 0 announced) Direct Preference: 0 Next hop type: Interface Next-hop reference count: 1 Next hop: via lo0.0, selected State: <Hidden Martian Int> Age: 4:51 Task: IF </pre>

```
AS path: I00:04:54
> via 100.0
```

show route inactive-prefix extensive The output for the **show route inactive-prefix extensive** command is identical to that of the **show route inactive-path detail** command. For sample output, see **show route inactive-prefix detail** on page 478.

show route inactive-prefix terse user@host> **show route inactive-prefix terse**

inet.0: 18 destinations, 18 routes (17 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
	127.0.0.1/32	D	0			>100.0	

show route instance

Syntax	show route instance <brief detail summary> <instance-name> <logical-system (all <i>logical-system-name</i>)> <operational>
Syntax (EX Series Switch)	show route instance <brief detail summary> <instance-name> <operational>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display routing instance information.
Options	<p>none—(Same as brief) Display standard information about all routing instances.</p> <p>brief detail summary—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief. (These options are not available with the operational keyword.)</p> <p><i>instance-name</i>—(Optional) Display information for a specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>operational—(Optional) Display operational routing instances.</p>
Required Privilege Level	view
List of Sample Output	<p>show route instance on page 481</p> <p>show route instance detail (Graceful Restart Complete) on page 482</p> <p>show route instance detail (Graceful Restart Incomplete) on page 483</p> <p>show route instance detail (VPLS Routing Instance) on page 485</p> <p>show route instance operational on page 485</p> <p>show route instance summary on page 485</p>
Output Fields	Table 124 on page 480 lists the output fields for the show route instance command. Output fields are listed in the approximate order in which they appear.

Table 124: show route instance Output Fields

Field Name	Field Description	Level of Output
Instance or <i>instance-name</i>	Name of the routing instance.	All levels
Operational Routing Instances	(operational keyword only) Names of all operational routing instances.	—

Table 124: show route instance Output Fields (*continued*)

Field Name	Field Description	Level of Output
Type	Type of routing instance: forwarding , l2vpn , no-forwarding , vpls , or vrf .	All levels
State	State of the routing instance: active or inactive .	brief detail none
Interfaces	Name of interfaces belonging to this routing instance.	brief detail none
Restart State	Status of graceful restart for this instance: Pending or Complete .	detail
Path selection timeout	Maximum amount of time, in seconds, remaining until graceful restart is declared complete. The default is 300.	detail
Tables	Tables (and number of routes) associated with this routing instance.	none brief detail
Route-distinguisher	Unique route distinguisher associated with this routing instance.	detail
Vrf-import	VPN routing and forwarding instance import policy name.	detail
Vrf-export	VPN routing and forwarding instance export policy name.	detail
Vrf-import-target	VPN routing and forwarding instance import target community name.	detail
Vrf-export-target	VPN routing and forwarding instance export target community name.	detail
Fast-reroute-priority	Fast reroute priority setting for a VPLS routing instance: high , medium , or low . The default is low .	detail
Restart State	Restart state: <ul style="list-style-type: none"> Pending:protocol-name—List of protocols that have not yet completed graceful restart for this routing table. Complete—All protocols have restarted for this routing table. 	detail
Primary rib	Primary table for this routing instance.	brief none summary
Active/holddown/hidden	Number of active, hold-down, and hidden routes.	All levels

```

show route instance user@host> show route instance
Instance           Type
Primary RIB
master             forwarding
inet.0             16/0/1
iso.0               1/0/0
mpls.0             0/0/0
inet6.0            2/0/0
l2circuit.0        0/0/0
__juniper_private1__ forwarding

```

```

__juniper_private1__.inet.0          12/0/0
__juniper_private1__.inet6.0         1/0/0

```

**show route instance
detail (Graceful
Restart Complete)**

```
user@host> show route instance detail
```

```
master:
```

```

Router ID: 10.255.14.176
Type: forwarding      State: Active
Restart State: Complete Path selection timeout: 300
Tables:
  inet.0               : 17 routes (15 active, 0 holddown, 1 hidden)
Restart Complete
  inet.3               : 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
  iso.0                : 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete
  mpls.0              : 19 routes (19 active, 0 holddown, 0 hidden)
Restart Complete
  bgp.l3vpn.0          : 10 routes (10 active, 0 holddown, 0 hidden)
Restart Complete
  inet6.0              : 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
  bgp.l2vpn.0          : 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

```

```
BGP-INET:
```

```

Router ID: 10.69.103.1
Type: vrf              State: Active
Restart State: Complete Path selection timeout: 300
Interfaces:
  t3-0/0/0.103
Route-distinguisher: 10.255.14.176:103
Vrf-import: [ BGP-INET-import ]
Vrf-export: [ BGP-INET-export ]
Tables:
  BGP-INET.inet.0      : 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

```

```
BGP-L:
```

```

Router ID: 10.69.104.1
Type: vrf              State: Active
Restart State: Complete Path selection timeout: 300
Interfaces:
  t3-0/0/0.104
Route-distinguisher: 10.255.14.176:104
Vrf-import: [ BGP-L-import ]
Vrf-export: [ BGP-L-export ]
Tables:
  BGP-L.inet.0         : 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
  BGP-L.mpls.0         : 3 routes (3 active, 0 holddown, 0 hidden)
Restart Complete

```

```
L2VPN:
```

```

Router ID: 0.0.0.0
Type: l2vpn            State: Active
Restart State: Complete Path selection timeout: 300
Interfaces:
  t3-0/0/0.512
Route-distinguisher: 10.255.14.176:512
Vrf-import: [ L2VPN-import ]
Vrf-export: [ L2VPN-export ]
Tables:
  L2VPN.l2vpn.0        : 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

```



```

LDP:
  Router ID: 10.69.105.1
  Type: vrf                      State: Active
  Restart State: Complete Path selection timeout: 300
  Interfaces:
    t3-0/0/0.105
  Route-distinguisher: 10.255.14.176:105
  Vrf-import: [ LDP-import ]
  Vrf-export: [ LDP-export ]
  Tables:
    LDP.inet.0                  : 5 routes (4 active, 0 holddown, 0 hidden)
    Restart Complete

OSPF:
  Router ID: 10.69.101.1
  Type: vrf                      State: Active
  Restart State: Complete Path selection timeout: 300
  Interfaces:
    t3-0/0/0.101
  Route-distinguisher: 10.255.14.176:101
  Vrf-import: [ OSPF-import ]
  Vrf-export: [ OSPF-export ]
  Vrf-import-target: [ target:11111
  Tables:
    OSPF.inet.0                : 8 routes (7 active, 0 holddown, 0 hidden)
    Restart Complete

RIP:
  Router ID: 10.69.102.1
  Type: vrf                      State: Active
  Restart State: Complete Path selection timeout: 300
  Interfaces:
    t3-0/0/0.102
  Route-distinguisher: 10.255.14.176:102
  Vrf-import: [ RIP-import ]
  Vrf-export: [ RIP-export ]
  Tables:
    RIP.inet.0                 : 6 routes (6 active, 0 holddown, 0 hidden)
    Restart Complete

STATIC:
  Router ID: 10.69.100.1
  Type: vrf                      State: Active
  Restart State: Complete Path selection timeout: 300
  Interfaces:
    t3-0/0/0.100
  Route-distinguisher: 10.255.14.176:100
  Vrf-import: [ STATIC-import ]
  Vrf-export: [ STATIC-export ]
  Tables:
    STATIC.inet.0              : 4 routes (4 active, 0 holddown, 0 hidden)
    Restart Complete

```

**show route instance
detail (Graceful
Restart Incomplete)**

```

user@host> show route instance detail
master:
  Router ID: 10.255.14.176
  Type: forwarding              State: Active
  Restart State: Pending Path selection timeout: 300
  Tables:
    inet.0                      : 17 routes (15 active, 1 holddown, 1 hidden)
    Restart Pending: OSPF LDP
    inet.3                      : 2 routes (2 active, 0 holddown, 0 hidden)
    Restart Pending: OSPF LDP
    iso.0                      : 1 routes (1 active, 0 holddown, 0 hidden)

```

```

Restart Complete
mpls.0                : 23 routes (23 active, 0 holddown, 0 hidden)
Restart Pending: LDP VPN
bgp.l3vpn.0           : 10 routes (10 active, 0 holddown, 0 hidden)
Restart Pending: BGP VPN
inet6.0               : 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
bgp.l2vpn.0           : 1 routes (1 active, 0 holddown, 0 hidden)
Restart Pending: BGP VPN
BGP-INET:
Router ID: 10.69.103.1
Type: vrf              State: Active
Restart State: Pending Path selection timeout: 300
Interfaces:
  t3-0/0/0.103
Route-distinguisher: 10.255.14.176:103
Vrf-import: [ BGP-INET-import ]
Vrf-export: [ BGP-INET-export ]
Tables:
  BGP-INET.inet.0      : 6 routes (5 active, 0 holddown, 0 hidden)
  Restart Pending: VPN
BGP-L:
Router ID: 10.69.104.1
Type: vrf              State: Active
Restart State: Pending Path selection timeout: 300
Interfaces:
  t3-0/0/0.104
Route-distinguisher: 10.255.14.176:104
Vrf-import: [ BGP-L-import ]
Vrf-export: [ BGP-L-export ]
Tables:
  BGP-L.inet.0         : 6 routes (5 active, 0 holddown, 0 hidden)
  Restart Pending: VPN
  BGP-L.mpls.0         : 2 routes (2 active, 0 holddown, 0 hidden)
  Restart Pending: VPN
L2VPN:
Router ID: 0.0.0.0
Type: l2vpn            State: Active
Restart State: Pending Path selection timeout: 300
Interfaces:
  t3-0/0/0.512
Route-distinguisher: 10.255.14.176:512
Vrf-import: [ L2VPN-import ]
Vrf-export: [ L2VPN-export ]
Tables:
  L2VPN.l2vpn.0        : 2 routes (2 active, 0 holddown, 0 hidden)
  Restart Pending: VPN L2VPN
LDP:
Router ID: 10.69.105.1
Type: vrf              State: Active
Restart State: Pending Path selection timeout: 300
Interfaces:
  t3-0/0/0.105
Route-distinguisher: 10.255.14.176:105
Vrf-import: [ LDP-import ]
Vrf-export: [ LDP-export ]
Tables:
  LDP.inet.0           : 5 routes (4 active, 1 holddown, 0 hidden)
  Restart Pending: OSPF LDP VPN
OSPF:
Router ID: 10.69.101.1

```

```

Type: vrf                      State: Active
Restart State: Pending Path selection timeout: 300
Interfaces:
  t3-0/0/0.101
Route-distinguisher: 10.255.14.176:101
Vrf-import: [ OSPF-import ]
Vrf-export: [ OSPF-export ]
Tables:
  OSPF.inet.0                  : 8 routes (7 active, 1 holddown, 0 hidden)
Restart Pending: OSPF VPN
RIP:
Router ID: 10.69.102.1
Type: vrf                      State: Active
Restart State: Pending Path selection timeout: 300
Interfaces:
  t3-0/0/0.102
Route-distinguisher: 10.255.14.176:102
Vrf-import: [ RIP-import ]
Vrf-export: [ RIP-export ]
Tables:
  RIP.inet.0                   : 8 routes (6 active, 2 holddown, 0 hidden)
Restart Pending: RIP VPN
STATIC:
Router ID: 10.69.100.1
Type: vrf                      State: Active
Restart State: Pending Path selection timeout: 300
Interfaces:
  t3-0/0/0.100
Route-distinguisher: 10.255.14.176:100
Vrf-import: [ STATIC-import ]
Vrf-export: [ STATIC-export ]
Tables:
  STATIC.inet.0                : 4 routes (4 active, 0 holddown, 0 hidden)
Restart Pending: VPN

```

**show route instance
detail (VPLS Routing
Instance)**

```

user@host> show route instance detail test-vpls
test-vpls:
Router ID: 0.0.0.0
Type: vpls                      State: Active
Interfaces:
  lsi.1048833
  lsi.1048832
  fe-0/1/0.513
Route-distinguisher: 10.255.37.65:1
Vrf-import: [ __vrf-import-test-vpls-internal__ ]
Vrf-export: [ __vrf-export-test-vpls-internal__ ]
Vrf-import-target: [ target:300:1 ]
Vrf-export-target: [ target:300:1 ]
Fast-reroute-priority: high
Tables:
  test-vpls.l2vpn.0            : 3 routes (3 active, 0 holddown, 0 hidden)

```

**show route instance
operational**

```

user@host> show route instance operational
Operational Routing Instances:

master
default

```

**show route instance
summary**

```

user@host> show route instance summary

```

Instance master	Type forwarding	Primary rib	Active/holdddown/hidden
		inet.0	15/0/1
		iso.0	1/0/0
		mpls.0	35/0/0
		l3vpn.0	0/0/0
		inet6.0	2/0/0
		l2vpn.0	0/0/0
		l2circuit.0	0/0/0
BGP-INET	vrf	BGP-INET.inet.0	5/0/0
BGP-L	vrf	BGP-INET.iso.0	0/0/0
		BGP-INET.inet6.0	0/0/0
		BGP-L.inet.0	5/0/0
		BGP-L.iso.0	0/0/0
		BGP-L.mpls.0	4/0/0
L2VPN	l2vpn	BGP-L.inet6.0	0/0/0
		L2VPN.inet.0	0/0/0
		L2VPN.iso.0	0/0/0
		L2VPN.inet6.0	0/0/0
LDP	vrf	L2VPN.l2vpn.0	2/0/0
		LDP.inet.0	4/0/0
		LDP.iso.0	0/0/0
		LDP.mpls.0	0/0/0
		LDP.inet6.0	0/0/0
OSPF	vrf	LDP.l2circuit.0	0/0/0
		OSPF.inet.0	7/0/0
		OSPF.iso.0	0/0/0
RIP	vrf	OSPF.inet6.0	0/0/0
		RIP.inet.0	6/0/0
		RIP.iso.0	0/0/0
STATIC	vrf	RIP.inet6.0	0/0/0
		STATIC.inet.0	4/0/0
		STATIC.iso.0	0/0/0
		STATIC.inet6.0	0/0/0

show route label

Syntax	show route label <i>label</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route label <i>label</i> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display the routes based on a specified Multiprotocol Label Switching (MPLS) label value.
Options	<p><i>label</i>—Value of the MPLS label.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route label on page 487</p> <p>show route label detail on page 488</p> <p>show route label extensive on page 488</p> <p>show route label terse on page 488</p>
Output Fields	For information about output fields, see the output field table for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route label	<pre> user@host> show route label 100016 mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 100016 *[VPN/170] 03:25:41 > to 10.12.80.1 via ge-6/3/2.0, Pop </pre>

show route label detail user@host> **show route label 100016 detail**

```
mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
100016 (1 entry, 1 announced)
    *VPN      Preference: 170
              Next-hop reference count: 2
              Source: 10.12.80.1
              Next hop: 10.12.80.1 via ge-6/3/2.0, selected
              Label operation: Pop
              State: <Active Int Ext>
              Local AS:      1
              Age: 3:23:31
              Task: BGP.0.0.0.0+179
              Announcement bits (1): 0-KRT
              AS path: 100 I
              Ref Cnt: 2
```

show route label extensive The output for the show route label extensive command is identical to that of the **show route label detail** command. For sample output, see **show route label detail** on page 488.

show route label terse user@host> **show route label 100016 terse**

```
mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
* 100016           V 170                      >10.12.80.1
```

show route label-switched-path

Syntax	show route label-switched-path <i>path-name</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route label-switched-path <i>path-name</i> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display the routes used in a Multiprotocol Label Switching (MPLS) label-switched path (LSP).
Options	brief detail extensive terse—(Optional) Display the specified level of output. <i>path-name</i> —LSP tunnel name. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show route label-switched-path on page 489
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route label-switched-path	<pre> user@host> show route label-switched-path sf-to-ny inet.0: 29 destinations, 29 routes (29 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both 1.1.1.1/32 [MPLS/7] 00:00:06, metric 0 > to 111.222.1.9 via s0-0/0/0, label-switched-path sf-to-ny 3.3.3.3/32 * [MPLS/7] 00:00:06, metric 0 > to 111.222.1.9 via s0-0/0/0, label-switched-path sf-to-ny inet.3: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both 2.2.2.2/32 * [MPLS/7] 00:00:06, metric 0 > to 111.222.1.9 via s0-0/0/0, label-switched-path sf-to-ny 4.4.4.4/32 * [MPLS/7] 00:00:06, metric 0 > to 111.222.1.9 via s0-0/0/0, label-switched-path abc > to 111.222.1.9 via s0-0/0/0, label-switched-path xyz > to 111.222.1.9 via s0-0/0/0, label-switched-path sf-to-ny 111.222.1.9/32 [MPLS/7] 00:00:06, metric 0 > to 111.222.1.9 via s0-0/0/0, label-switched-path sf-to-ny iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden) + = Active Route, - = Last Active, * = Both </pre>

mpls.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

show route martians

Syntax	show route martians <logical-system (all <i>logical-system-name</i>)> <table <i>routing-table-name</i> >
Syntax (EX Series Switch)	show route martians <table <i>routing-table-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the martian (invalid and ignored) entries associated with each routing table.
Options	<p>none—Display standard information about route martians for all routing tables.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>table <i>routing-table-name</i>—(Optional) Display only the martian entries associated with a particular routing table.</p>
Required Privilege Level	view
List of Sample Output	show route martians on page 491
Output Fields	Table 125 on page 491 lists the output fields for the show route martians command. Output fields are listed in the approximate order in which they appear

Table 125: show route martians Output Fields

Field Name	Field Description
<i>table-name</i>	Name of the route table in which the route martians reside.
<i>destination-prefix</i>	Route destination.
<i>match value</i>	Route match parameter.
<i>status</i>	Status of the route: allowed or disallowed .

show route martians user@host> show route martians

```
inet.0:
  0.0.0.0/0 exact -- allowed
  0.0.0.0/8 orlonger -- disallowed
  127.0.0.0/8 orlonger -- disallowed
  128.0.0.0/16 orlonger -- disallowed
  191.255.0.0/16 orlonger -- disallowed
  192.0.0.0/24 orlonger -- disallowed
  223.255.255.0/24 orlonger -- disallowed
  240.0.0.0/4 orlonger -- disallowed
```

```
inet.1:
0.0.0.0/0 exact -- allowed
0.0.0.0/8 orlonger -- disallowed
127.0.0.0/8 orlonger -- disallowed
128.0.0.0/16 orlonger -- disallowed
191.255.0.0/16 orlonger -- disallowed
192.0.0.0/24 orlonger -- disallowed
223.255.255.0/24 orlonger -- disallowed
240.0.0.0/4 orlonger -- disallowed

....
```

show route next-hop

Syntax	show route next-hop <i>next-hop</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route next-hop <i>next-hop</i> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the entries in the routing table that are being sent to the specified next-hop address.
Options	brief detail extensive terse—(Optional) Display the specified level of output. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. <i>next-hop</i> —Next-hop address.
Required Privilege Level	view
List of Sample Output	show route next-hop on page 493 show route next-hop detail on page 494 show route next-hop extensive on page 495 show route next-hop terse on page 497
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route next-hop	<pre> user@host> show route next-hop 192.168.71.254 inet.0: 18 destinations, 18 routes (17 active, 0 holddown, 1 hidden) Restart Complete + = Active Route, - = Last Active, * = Both 10.10.0.0/16 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 10.209.0.0/16 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 172.16.0.0/12 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 192.168.0.0/16 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 192.168.102.0/23 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 207.17.136.0/24 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 207.17.136.192/32 *[Static/5] 06:26:25 > to 192.168.71.254 via fxp0.0 </pre>

```

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

red.inet.0: 4 destinations, 5 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

show route next-hop detail user@host> show route next-hop 192.168.71.254 detail
inet.0: 18 destinations, 18 routes (17 active, 0 holddown, 1 hidden)
Restart Complete
10.10.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 36
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 1
    Age: 6:27:41
    Task: RT
    Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
    AS path: I

10.209.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 36
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 1
    Age: 6:27:41
    Task: RT
    Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
    AS path: I

172.16.0.0/12 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 36
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 1
    Age: 6:27:41
    Task: RT
    Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
    AS path: I

192.168.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 36
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 1
    Age: 6:27:41

```

```

Task: RT
Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
AS path: I

192.168.102.0/23 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 36
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 1
    Age: 6:27:41
    Task: RT
    Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
    AS path: I

207.17.136.0/24 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 36
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 1
    Age: 6:27:41
    Task: RT
    Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
    AS path: I

207.17.136.192/32 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 36
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 1
    Age: 6:27:41
    Task: RT
    Announcement bits (3): 0-KRT 3-Resolve tree 1 5-Resolve tree 2
    AS path: I

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

red.inet.0: 4 destinations, 5 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

show route next-hop extensive user@host> show route next-hop 192.168.71.254 extensive
inet.0: 18 destinations, 18 routes (17 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.10.0.0/16 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22

```

```

    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:02:28
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

10.209.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.209.0.0/16 -> {192.168.71.254}
    *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:02:28
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

172.16.0.0/12 (1 entry, 1 announced)
TSI:
KRT in-kernel 172.16.0.0/12 -> {192.168.71.254}
    *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:02:28
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

192.168.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 192.168.0.0/16 -> {192.168.71.254}
    *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:02:28
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

192.168.102.0/23 (1 entry, 1 announced)
TSI:
KRT in-kernel 192.168.102.0/23 -> {192.168.71.254}
    *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:02:28
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

207.17.136.0/24 (1 entry, 1 announced)
```

```

TSI:
KRT in-kernel 207.17.136.0/24 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:02:28
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

207.17.136.192/32 (1 entry, 1 announced)
TSI:
KRT in-kernel 207.17.136.192/32 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Local AS: 69
    Age: 2:02:28
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

green.l2vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

red.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```

show route next-hop terse

```

user@host> show route next-hop 192.168.71.254 terse

inet.0: 25 destinations, 26 routes (24 active, 0 holddown, 1 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
* 10.10.0.0/16     S  5              >192.168.71.254
* 10.209.0.0/16    S  5              >192.168.71.254
* 172.16.0.0/12    S  5              >192.168.71.254
* 192.168.0.0/16   S  5              >192.168.71.254
* 192.168.102.0/23 S  5              >192.168.71.254
* 207.17.136.0/24  S  5              >192.168.71.254
* 207.17.136.192/32 S  5              >192.168.71.254

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

red.inet.0: 4 destinations, 5 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

```

```
mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
private1__inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
```


show route no-community

Syntax	show route no-community <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route no-community <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the route entries in each routing table that are not associated with any community.
Options	<p>none—(Same as brief) Display the route entries in each routing table that are not associated with any community.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route no-community on page 499</p> <p>show route no-community detail on page 500</p> <p>show route no-community extensive on page 500</p> <p>show route no-community terse on page 501</p>
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route no-community	<pre> user@host> show route no-community inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden) + = Active Route, - = Last Active, * = Both 10.10.0.0/16 *[Static/5] 00:36:27 > to 192.168.71.254 via fxp0.0 10.209.0.0/16 *[Static/5] 00:36:27 > to 192.168.71.254 via fxp0.0 10.255.71.52/32 *[Direct/0] 00:36:27 > via lo0.0 10.255.71.63/32 *[OSPF/10] 00:04:39, metric 1 > to 35.1.1.2 via ge-3/1/0.0 10.255.71.64/32 *[OSPF/10] 00:00:08, metric 2 > to 35.1.1.2 via ge-3/1/0.0 10.255.71.240/32 *[OSPF/10] 00:05:04, metric 2 via so-0/1/2.0 > via so-0/3/2.0 10.255.71.241/32 *[OSPF/10] 00:05:14, metric 1 > via so-0/1/2.0 10.255.71.242/32 *[OSPF/10] 00:05:19, metric 1 </pre>

```

> via so-0/3/2.0
12.1.1.0/24      *[OSPF/10] 00:05:14, metric 2
> via so-0/3/2.0
14.1.1.0/24      *[OSPF/10] 00:00:08, metric 3
> to 35.1.1.2 via ge-3/1/0.0
                  via so-0/1/2.0
                  via so-0/3/2.0
16.1.1.0/24      *[OSPF/10] 00:05:14, metric 2
> via so-0/1/2.0
.....

```

show route no-community detail user@host> **show route no-community detail**

```

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
    *Static Preference: 5
        Next-hop reference count: 22
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Age: 38:08
        Task: RT
        Announcement bits (1): 0-KRT
        AS path: I

10.209.0.0/16 (1 entry, 1 announced)
    *Static Preference: 5
        Next-hop reference count: 22
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Age: 38:08
        Task: RT
        Announcement bits (1): 0-KRT
        AS path: I

....

```

show route no-community extensive user@host> **show route no-community extensive**

```

inet.0: 18 destinations, 18 routes (17 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.10.0.0/16 -> {192.168.71.254}
    *Static Preference: 5
        Next-hop reference count: 22
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Local AS: 69
        Age: 2:03:33
        Task: RT
        Announcement bits (1): 0-KRT
        AS path: I

10.209.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.209.0.0/16 -> {192.168.71.254}
    *Static Preference: 5
        Next-hop reference count: 22
        Next hop: 192.168.71.254 via fxp0.0, selected
        State: <Active NoReadvrt Int Ext>
        Local AS: 69
        Age: 2:03:33
        Task: RT

```

Announcement bits (1): 0-KRT
AS path: I

show route user@host> **show route no-community terse**
no-community terse

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
*	10.10.0.0/16	S	5			>192.168.71.254	
*	10.209.0.0/16	S	5			>192.168.71.254	
*	10.255.71.52/32	D	0			>100.0	
*	10.255.71.63/32	0	10	1		>35.1.1.2	
*	10.255.71.64/32	0	10	2		>35.1.1.2	
*	10.255.71.240/32	0	10	2		so-0/1/2.0	
						>so-0/3/2.0	
*	10.255.71.241/32	0	10	1		>so-0/1/2.0	
*	10.255.71.242/32	0	10	1		>so-0/3/2.0	
*	12.1.1.0/24	0	10	2		>so-0/3/2.0	
*	14.1.1.0/24	0	10	3		>35.1.1.2	
						so-0/1/2.0	
						so-0/3/2.0	
*	16.1.1.0/24	0	10	2		>so-0/1/2.0	
	...						

show route output

Syntax	<code>show route output (address <i>ip-address</i> interface <i>interface-name</i>)</code> <code><brief detail extensive terse></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>show route output (address <i>ip-address</i> interface <i>interface-name</i>)</code> <code><brief detail extensive terse></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	<p>Display the entries in the routing table learned through static routes and interior gateway protocols that are to be sent out the interface with either the specified IP address or specified name.</p> <p>To view routes advertised to a neighbor or received from a neighbor for the BGP protocol, use the show route advertising-protocol bgp and show route receive-protocol bgp commands instead.</p>
Options	<p><code>address <i>ip-address</i></code>—Display entries in the routing table that are to be sent out the interface with the specified IP address.</p> <p><code>brief detail extensive terse</code>—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p><code>interface <i>interface-name</i></code>—Display entries in the routing table that are to be sent out the interface with the specified name.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route output address on page 502 show route output address detail on page 503 show route output address extensive on page 503 show route output address terse on page 504 show route output interface on page 504 show route output interface detail on page 504 show route output interface extensive on page 505 show route output interface terse on page 505
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route output address	<pre>user@host> show route output address 36.1.1.1/24 inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)</pre>

+ = Active Route, - = Last Active, * = Both

```
36.1.1.0/24      *[Direct/0] 00:19:56
                  > via so-0/1/2.0
                  [OSPF/10] 00:19:55, metric 1
                  > via so-0/1/2.0
```

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

show route output address detail

user@host> show route output address 36.1.1.1 detail

```
inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
36.1.1.0/24 (2 entries, 0 announced)
```

```
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via so-0/1/2.0, selected
    State: <Active Int>
    Age: 23:00
    Task: IF
    AS path: I
  OSPF Preference: 10
    Next-hop reference count: 1
    Next hop: via so-0/1/2.0, selected
    State: <Int>
    Inactive reason: Route Preference
    Age: 22:59      Metric: 1
    Area: 0.0.0.0
    Task: OSPF
    AS path: I
```

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

show route output address extensive

The output for the **show route output address extensive** command is identical to that of the **show route output address detail** command. For sample output, see **show route output address detail** on page 503.

```

show route output address terse
user@host> show route output address 36.1.1.1 terse

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1   Metric 2   Next hop      AS path
* 36.1.1.0/24      D   0           1           >so-0/1/2.0
                        0  10           1           >so-0/1/2.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)


show route output interface
user@host> show route output interface so-0/1/2.0

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

10.255.71.240/32   *[OSPF/10] 00:13:00, metric 2
                   via so-0/1/2.0
                   > via so-0/3/2.0
10.255.71.241/32   *[OSPF/10] 00:13:10, metric 1
                   > via so-0/1/2.0
14.1.1.0/24        *[OSPF/10] 00:05:11, metric 3
                   to 35.1.1.2 via ge-3/1/0.0
                   > via so-0/1/2.0
                   via so-0/3/2.0
16.1.1.0/24        *[OSPF/10] 00:13:10, metric 2
                   > via so-0/1/2.0
36.1.1.0/24        *[Direct/0] 00:13:21
                   > via so-0/1/2.0
                   [OSPF/10] 00:13:20, metric 1
                   > via so-0/1/2.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)


show route output interface detail
user@host> show route output interface so-0/1/2.0 detail

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
10.255.71.240/32 (1 entry, 1 announced)
    *OSPF   Preference: 10
            Next-hop reference count: 2
            Next hop: via so-0/1/2.0
            Next hop: via so-0/3/2.0, selected
            State: <Active Int>
            Age: 14:52      Metric: 2

```

```

Area: 0.0.0.0
Task: OSPF
Announcement bits (1): 0-KRT
AS path: I

10.255.71.241/32 (1 entry, 1 announced)
  *OSPF Preference: 10
    Next-hop reference count: 4
    Next hop: via so-0/1/2.0, selected
    State: <Active Int>
    Age: 15:02 Metric: 1
    Area: 0.0.0.0
    Task: OSPF
    Announcement bits (1): 0-KRT
    AS path: I
...

```

show route output interface extensive The output for the **show route output interface extensive** command is identical to that of the **show route output interface detail** command. For sample output, see **show route output interface detail** on page 504.

show route output interface terse user@host> show route output interface so-0/1/2.0 terse

```

inet.0: 28 destinations, 30 routes (27 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
* 10.255.71.240/32  0 10      2          so-0/1/2.0
                        >so-0/3/2.0
* 10.255.71.241/32  0 10      1          >so-0/1/2.0
* 14.1.1.0/24       0 10      3          35.1.1.2
                        >so-0/1/2.0
                        so-0/3/2.0
* 16.1.1.0/24       0 10      2          >so-0/1/2.0
* 36.1.1.0/24       D 0       1          >so-0/1/2.0
                        0 10      1          >so-0/1/2.0

private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

mpls.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

```

show route protocol

Syntax	<code>show route protocol <i>protocol</i></code> <code><brief detail extensive terse></code> <code><logical-system (all <i>logical-system-name</i>)></code>
Syntax (EX Series Switch)	<code>show route protocol <i>protocol</i></code> <code><brief detail extensive terse></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. ospf2 and ospf3 options introduced in Junos OS Release 9.2. ospf2 and ospf3 options introduced in Junos OS Release 9.2 for EX Series switches. flow option introduced in Junos OS Release 10.0. flow option introduced in Junos OS Release 10.0 for EX Series switches.
Description	Display the route entries in the routing table that were learned from a particular protocol.
Options	<i>protocol</i> —Protocol from which the route was learned: <ul style="list-style-type: none">• access—Access route for use by DHCP application• access-internal—Access-internal route for use by DHCP application• aggregate—Locally generated aggregate route• atmvpn—Asynchronous Transfer Mode virtual private network• bgp—Border Gateway Protocol• ccc—Circuit cross-connect• direct—Directly connected route• dvmrp—Distance Vector Multicast Routing Protocol• esis—End System-to-Intermediate System• flow—Locally defined flow-specification route.• isis—Intermediate System-to-Intermediate System• ldp—Label Distribution Protocol• l2circuit—Layer 2 circuit• l2vpn—Layer 2 virtual private network• local—Local address• mpls—Multiprotocol Label Switching• msdp—Multicast Source Discovery Protocol• ospf—Open Shortest Path First versions 2 and 3• ospf2—Open Shortest Path First versions 2 only• ospf3—Open Shortest Path First version 3 only

- **pim**—Protocol Independent Multicast
- **rip**—Routing Information Protocol
- **ripng**—Routing Information Protocol next generation
- **rsvp**—Resource Reservation Protocol
- **rtarget**—Local route target virtual private network
- **static**—Statically defined route
- **tunnel**—Dynamic tunnel
- **vpn**—Virtual private network



NOTE: EX Series switches run a subset of these protocols. See the switch CLI for details.

brief | detail | extensive | terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

Required Privilege Level

view

List of Sample Output

show route protocol access on page 508
 show route protocol access-internal extensive on page 508
 show route protocol bgp on page 508
 show route protocol bgp detail on page 508
 show route protocol bgp extensive on page 509
 show route protocol bgp terse on page 509
 show route protocol direct on page 509
 show route protocol l2circuit detail on page 509
 show route protocol l2vpn extensive on page 510
 show route protocol ldp on page 511
 show route protocol ldp extensive on page 511
 show route protocol ospf (Layer 3 VPN) on page 512
 show route protocol ospf detail on page 513
 show route protocol rip on page 513
 show route protocol rip detail on page 513
 show route protocol ripng table inet6 on page 514

Output Fields

For information about output fields, see the output field tables for the **show route** command, the **show route detail** command, the **show route extensive** command, or the **show route terse** command.

```

show route protocol access      user@host> show route protocol access
                                inet.0: 30380 destinations, 30382 routes (30379 active, 0 holddown, 1 hidden)
                                + = Active Route, - = Last Active, * = Both

                                13.160.0.3/32      *[Access/13] 00:00:09
                                    > to 13.160.0.2 via fe-0/0/0.0
                                13.160.0.4/32      *[Access/13] 00:00:09
                                    > to 13.160.0.2 via fe-0/0/0.0
                                13.160.0.5/32      *[Access/13] 00:00:09
                                    > to 13.160.0.2 via fe-0/0/0.0

show route protocol access-internal extensive
                                user@host> show route protocol access-internal 13.160.0.19 extensive
                                inet.0: 100020 destinations, 100022 routes (100019 active, 0 holddown, 1 hidden)
                                13.160.0.19/32 (1 entry, 1 announced)
                                TSI:
                                KRT in-kernel 13.160.0.19/32 -> {13.160.0.2}
                                    *Access-internal Preference: 12
                                        Next-hop reference count: 200000
                                        Next hop: 13.160.0.2 via fe-0/0/0.0, selected
                                        State: <Active Int>
                                Age: 36
                                    Task: RPD Unix Domain Server./var/run/rpd_serv.local
                                    Announcement bits (1): 0-KRT
                                    AS path: I

show route protocol bgp        user@host> show route protocol bgp 192.168.64.0/21
                                inet.0: 24 destinations, 32 routes (23 active, 0 holddown, 1 hidden)
                                + = Active Route, - = Last Active, * = Both

                                192.168.64.0/21      [BGP/170] 00:04:33, localpref 100
                                    AS path: 10023 21 I
                                    > to 100.1.3.2 via ge-5/0/3.0, Push 100080

show route protocol bgp detail
                                user@host> show route protocol bgp 66.117.63.0/24 exact detail
                                inet.0: 227318 destinations, 227319 routes (227305 active, 0 holddown, 13 hidden)
                                66.117.63.0/24 (1 entry, 1 announced)
                                *BGP      Preference: 170/-101
                                    Next hop type: Indirect
                                    Next-hop reference count: 681816
                                    Source: 207.17.136.192
                                    Next hop type: Router, Next hop index: 324
                                    Next hop: 192.168.167.254 via fxp0.0, selected
                                    Protocol next hop: 207.17.136.29
                                    Indirect next hop: 8c7b09c 342
                                    State: <Active Int Ext
                                    Local AS: 200 Peer AS: 10458
                                    Age: 20:31:24 Metric2: 0
                                    Task: BGP_10458_10458.207.17.136.192+179
                                    Announcement bits (2): 0-KRT 3-Resolve tree 2
                                    AS path: AS2 PA[6]: 14203 2914 3356 29748 33437 AS_TRANS
                                    AS path: AS4 PA[2]: 33437 393219
                                    AS path: Merged[6]: 14203 2914 3356 29748 33437 393219 I
                                    Communities: 2914:420
                                    Localpref: 100
                                    Router ID: 207.17.136.192

```

```

show route protocol bgp extensive user@host> show route protocol bgp 192.168.64.0/21 extensive
inet.0: 24 destinations, 32 routes (23 active, 0 holddown, 1 hidden)
192.168.64.0/21 (2 entries, 1 announced)
TSI:
Page 0 idx 0 Type 1 val 86f50a8
      BGP      Preference: 170/-101
                Next-hop reference count: 3
                Source: 100.1.3.2
                Next hop: 100.1.3.2 via ge-5/0/3.0, selected
                Label operation: Push 100080
                State: <Ext>
                Inactive reason: Route Preference
                Local AS: 21 Peer AS: 10023
                Age: 4:43
                Task: BGP_10023.100.1.3.2+4282
                AS path: 10023 21 I
                Route Label: 100080
                Localpref: 100
                Router ID: 100.1.3.2

show route protocol bgp terse user@host> show route protocol bgp 192.168.64.0/21 terse
inet.0: 24 destinations, 32 routes (23 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf  Metric 1  Metric 2  Next hop      AS path
192.168.64.0/21    B 170      100          >100.1.3.2    10023 21 I

show route protocol direct user@host> show route protocol direct
inet.0: 35 destinations, 35 routes (34 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

127.0.0.1/32      [Direct/0] 14:36:24
> via lo0.0
111.222.5.0/24    *[Direct/0] 14:36:24
> via fxp0.0
111.222.8.16/28   *[Direct/0] 14:36:24
> via at-5/3/0.0
111.222.8.100/30  *[Direct/0] 14:36:24
> via at-5/3/0.129
111.222.8.104/30  *[Direct/0] 14:36:24
> via at-5/3/0.128
111.222.8.161/32  *[Direct/0] 14:36:24
> via t3-5/2/0.0
111.222.8.163/32  *[Direct/0] 14:36:24
> via t3-5/2/1.0
...

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

47.0005.80ff.f800.0000.0108.0001.1921.6800.5081.00/160
*[Direct/0] 14:36:24
> via lo0.0

show route protocol l2circuit detail user@host> show route protocol l2circuit detail
l2circuit detail

```

```

mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
100000 (1 entry, 1 announced)
  *L2CKT Preference: 7
    Next hop: via ge-2/0/0.0, selected
    Label operation: Pop      Offset: 4
    State: <Active Int>
    Local AS: 99
    Age: 9:52
    Task: Common L2 VC
    Announcement bits (1): 0-KRT
    AS path: I

ge-2/0/0.0 (1 entry, 1 announced)
  *L2CKT Preference: 7
    Next hop: via so-1/1/2.0 weight 1, selected
    Label-switched-path my-lsp
    Label operation: Push 100000, Push 100000(top)[0] Offset: -4
    Protocol next hop: 10.245.255.63
    Push 100000 Offset: -4
    Indirect next hop: 86af0c0 298
    State: <Active Int>
    Local AS: 99
    Age: 9:52
    Task: Common L2 VC
    Announcement bits (2): 0-KRT 1-Common L2 VC
    AS path: I

l2circuit.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
10.245.255.63:CtrlWord:4:3:Local/96 (1 entry, 1 announced)
  *L2CKT Preference: 7
    Next hop: via so-1/1/2.0 weight 1, selected
    Label-switched-path my-lsp
    Label operation: Push 100000[0]
    Protocol next hop: 10.245.255.63 Indirect next hop: 86af000 296
    State: <Active Int>
    Local AS: 99
    Age: 10:21
    Task: l2 circuit
    Announcement bits (1): 0-LDP
    AS path: I
    VC Label 100000, MTU 1500, VLAN ID 512

```

**show route protocol
l2vpn extensive**

```

user@host> show route protocol l2vpn extensive

inet.0: 14 destinations, 15 routes (13 active, 0 holddown, 1 hidden)

inet.3: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)

mpls.0: 7 destinations, 7 routes (7 active, 0 holddown, 0 hidden)
800001 (1 entry, 1 announced)
TSI:
KRT in-kernel 800001 /36 -> {so-0/0/0.0}
  *L2VPN Preference: 7
    Next hop: via so-0/0/0.0 weight 49087 balance 97%, selected
    Label operation: Pop      Offset: 4
    State: <Active Int>
    Local AS: 69

```

```

Age: 7:48
Task: Common L2 VC
Announcement bits (1): 0-KRT
AS path: I

so-0/0/0.0 (1 entry, 1 announced)
TSI:
KRT in-kernel so-0/0/0.0      /16 -> {indirect(288)}
    *L2VPN Preference: 7
    Next hop: via so-0/0/1.0, selected
    Label operation: Push 800000 Offset: -4
    Protocol next hop: 10.255.14.220
    Push 800000 Offset: -4
    Indirect next hop: 85142a0 288
    State: <Active Int>
    Local AS: 69
    Age: 7:48
    Task: Common L2 VC
    Announcement bits (2): 0-KRT 1-Common L2 VC
    AS path: I
    Communities: target:69:1 Layer2-info: encaps:PPP,
    control flags:2, mtu: 0

```

```

show route protocol user@host> show route protocol ldp
ldp
inet.0: 12 destinations, 13 routes (12 active, 0 holddown, 0 hidden)

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

192.168.16.1/32    *[LDP/9] 1d 23:03:35, metric 1
                  > via t1-4/0/0.0, Push 100000
192.168.17.1/32    *[LDP/9] 1d 23:03:35, metric 1
                  > via t1-4/0/0.0

private1__inet.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

mpls.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

100064             *[LDP/9] 1d 23:03:35, metric 1
                  > via t1-4/0/0.0, Pop
100064(S=0)        *[LDP/9] 1d 23:03:35, metric 1
                  > via t1-4/0/0.0, Pop
100080             *[LDP/9] 1d 23:03:35, metric 1
                  > via t1-4/0/0.0, Swap 100000

```

```

show route protocol user@host> show route protocol ldp extensive
ldp extensive
192.168.16.1/32 (1 entry, 1 announced)
    State: <FlashAll>
    *LDP Preference: 9
    Next-hop reference count: 3
    Next hop: via t1-4/0/0.0, selected
    Label operation: Push 100000
    State: <Active Int>
    Local AS: 65500
    Age: 1d 23:03:58      Metric: 1
    Task: LDP
    Announcement bits (2): 0-Resolve tree 1 2-Resolve tree 2
    AS path: I

192.168.17.1/32 (1 entry, 1 announced)

```

```

State: <FlashAll>
*LDP   Preference: 9
       Next-hop reference count: 3
       Next hop: via t1-4/0/0.0, selected
       State: <Active Int>
       Local AS: 65500
       Age: 1d 23:03:58           Metric: 1
       Task: LDP
       Announcement bits (2): 0-Resolve tree 1 2-Resolve tree 2
       AS path: I

private1__inet.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

mpls.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)

100064 (1 entry, 1 announced)
TSI:
KRT in-kernel 100064 /36 -> {t1-4/0/0.0}
*LDP   Preference: 9
       Next-hop reference count: 2
       Next hop: via t1-4/0/0.0, selected
       State: <Active Int>
       Local AS: 65500
       Age: 1d 23:03:58           Metric: 1
       Task: LDP
       Announcement bits (1): 0-KRT
       AS path: I
       Prefixes bound to route: 192.168.17.1/32

100064(S=0) (1 entry, 1 announced)
TSI:
KRT in-kernel 100064 /40 -> {t1-4/0/0.0}
*LDP   Preference: 9
       Next-hop reference count: 2
       Next hop: via t1-4/0/0.0, selected
       Label operation: Pop
       State: <Active Int>
       Local AS: 65500
       Age: 1d 23:03:58           Metric: 1
       Task: LDP
       Announcement bits (1): 0-KRT
       AS path: I

100080 (1 entry, 1 announced)
TSI:
KRT in-kernel 100080 /36 -> {t1-4/0/0.0}
*LDP   Preference: 9
       Next-hop reference count: 2
       Next hop: via t1-4/0/0.0, selected
       Label operation: Swap 100000
       State: <Active Int>
       Local AS: 65500
       Age: 1d 23:03:58           Metric: 1
       Task: LDP
       Announcement bits (1): 0-KRT
       AS path: I
       Prefixes bound to route: 192.168.16.1/32

```

```

show route protocol ospf user@host> show route protocol ospf
ospf (Layer 3 VPN) inet.0: 40 destinations, 40 routes (39 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

```

```

10.39.1.4/30      *[OSPF/10] 00:05:18, metric 4
                  > via t3-3/2/0.0
10.39.1.8/30      [OSPF/10] 00:05:18, metric 2
                  > via t3-3/2/0.0
10.255.14.171/32  *[OSPF/10] 00:05:18, metric 4
                  > via t3-3/2/0.0
10.255.14.179/32  *[OSPF/10] 00:05:18, metric 2
                  > via t3-3/2/0.0
224.0.0.5/32      *[OSPF/10] 20:25:55, metric 1

VPN-AB.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

10.39.1.16/30      [OSPF/10] 00:05:43, metric 1
                  > via so-0/2/2.0
10.255.14.173/32  *[OSPF/10] 00:05:43, metric 1
                  > via so-0/2/2.0
224.0.0.5/32      *[OSPF/10] 20:26:20, metric 1

```

show route protocol ospf detail

```

user@host> show route protocol ospf detail
VPN-AB.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

10.39.1.16/30 (2 entries, 0 announced)
  OSPF   Preference: 10
          Nexthop: via so-0/2/2.0, selected
          State: <Int>
          Inactive reason: Route Preference
          Age: 6:25      Metric: 1
          Area: 0.0.0.0
          Task: VPN-AB-OSPF
          AS path: I
          Communities: Route-Type:0.0.0.0:1:0

```

...

show route protocol rip

```

user@host> show route protocol rip
inet.0: 26 destinations, 27 routes (25 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

VPN-AB.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
10.255.14.177/32  *[RIP/100] 20:24:34, metric 2
                  > to 10.39.1.22 via t3-0/2/2.0
224.0.0.9/32      *[RIP/100] 00:03:59, metric 1

```

show route protocol rip detail

```

user@host> show route protocol rip detail
inet.0: 26 destinations, 27 routes (25 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

VPN-AB.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
10.255.14.177/32 (1 entry, 1 announced)
  *RIP   Preference: 100
          Nexthop: 10.39.1.22 via t3-0/2/2.0, selected
          State: <Active Int>
          Age: 20:25:02  Metric: 2
          Task: VPN-AB-RIPv2
          Announcement bits (2): 0-KRT 2-BGP.0.0.0.0+179

```

AS path: I
Route learned from 10.39.1.22 expires in 96 seconds

```
show route protocol ripng table inet6
ripng table inet6

user@host> show route protocol ripng table inet6
inet6.0: 4215 destinations, 4215 routes (4214 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

1111::1/128      *[RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0
1111::2/128      *[RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0
1111::3/128      *[RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0
1111::4/128      *[RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0
1111::5/128      *[RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0
1111::6/128      *[RIPng/100] 02:13:33, metric 2
                  > to fe80::2a0:a5ff:fe3d:56 via t3-0/2/0.0
```


show route range

Syntax	show route range <brief detail extensive terse> <destination-prefix> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route range <brief detail extensive terse> <destination-prefix>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display routing table entries using a prefix range.
Options	<p>none—Display standard information about all routing table entries using a prefix range.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>destination-prefix—(Optional) Destination and prefix mask for the range.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show route range on page 515</p> <p>show route range destination-prefix on page 516</p> <p>show route range detail on page 516</p> <p>show route range extensive on page 517</p> <p>show route range terse on page 518</p>
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route range	<pre> user@host> show route range inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden) + = Active Route, - = Last Active, * = Both 10.10.0.0/16 *[Static/5] 00:30:01 > to 192.168.71.254 via fxp0.0 10.209.0.0/16 *[Static/5] 00:30:01 > to 192.168.71.254 via fxp0.0 10.255.71.14/32 *[Direct/0] 00:30:01 > via lo0.0 172.16.0.0/12 *[Static/5] 00:30:01 > to 192.168.71.254 via fxp0.0 192.168.0.0/16 *[Static/5] 00:30:01 > to 192.168.71.254 via fxp0.0 </pre>

```

192.168.64.0/21    *[Direct/0] 00:30:01
                  > via fxp0.0
192.168.71.14/32  *[Local/0] 00:30:01
                  Local via fxp0.0
192.168.102.0/23  *[Static/5] 00:30:01
                  > to 192.168.71.254 via fxp0.0
...

```

**show route range
destination-prefix**

```

user@host> show route range 192.168.0.0

inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

192.168.0.0/16    *[Static/5] 00:31:14
                  > to 192.168.71.254 via fxp0.0
192.168.64.0/21   *[Direct/0] 00:31:14
                  > via fxp0.0
192.168.71.14/32  *[Local/0] 00:31:14
                  Local via fxp0.0
192.168.102.0/23  *[Static/5] 00:31:14
                  > to 192.168.71.254 via fxp0.0

```

**show route range
detail**

```

user@host> show route range detail

inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 30:05
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

10.209.0.0/16 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 30:05
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

10.255.71.14/32 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active Int>
    Age: 30:05
    Task: IF
    AS path: I

172.16.0.0/12 (1 entry, 1 announced)
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 30:05

```

```

Task: RT
Announcement bits (1): 0-KRT
AS path: I

...

show route range extensive user@host> show route range extensive
extensive
inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden)
10.10.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.10.0.0/16 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 30:17
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

10.209.0.0/16 (1 entry, 1 announced)
TSI:
KRT in-kernel 10.209.0.0/16 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 30:17
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

10.255.71.14/32 (1 entry, 0 announced)
  *Direct Preference: 0
    Next hop type: Interface
    Next-hop reference count: 1
    Next hop: via lo0.0, selected
    State: <Active Int>
    Age: 30:17
    Task: IF
    AS path: I

172.16.0.0/12 (1 entry, 1 announced)
TSI:
KRT in-kernel 172.16.0.0/12 -> {192.168.71.254}
  *Static Preference: 5
    Next-hop reference count: 22
    Next hop: 192.168.71.254 via fxp0.0, selected
    State: <Active NoReadvrt Int Ext>
    Age: 30:17
    Task: RT
    Announcement bits (1): 0-KRT
    AS path: I

...

```

show route range terse user@host> **show route range terse**

inet.0: 11 destinations, 11 routes (10 active, 0 holddown, 1 hidden)
 + = Active Route, - = Last Active, * = Both

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
*	10.10.0.0/16	S	5			>192.168.71.254	
*	10.209.0.0/16	S	5			>192.168.71.254	
*	10.255.71.14/32	D	0			>100.0	
*	172.16.0.0/12	S	5			>192.168.71.254	
*	192.168.0.0/16	S	5			>192.168.71.254	
*	192.168.64.0/21	D	0			>fxp0.0	
*	192.168.71.14/32	L	0			Local	
*	192.168.102.0/23	S	5			>192.168.71.254	
*	207.17.136.0/24	S	5			>192.168.71.254	
*	207.17.136.192/32	S	5			>192.168.71.254	

__juniper_private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
*	10.0.0.0/8	D	0			>fxp2.0	
		D	0			>fxp1.0	
*	10.0.0.4/32	L	0			Local	

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
	47.0005.80ff.f800.0000.0108.0001.0102.5507.1014/152						
*		D	0			>100.0	

inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
	abcd::10:255:71:14/128						
*		D	0			>100.0	
	fe80::280:42ff:fe11:226f/128						
*		D	0			>100.0	

__juniper_private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

A	Destination	P	Prf	Metric 1	Metric 2	Next hop	AS path
	fe80::280:42ff:fe11:226f/128						
*		D	0			>100.16385	

show route receive-protocol

Syntax	show route receive-protocol <i>protocol neighbor-address</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route receive-protocol <i>protocol neighbor-address</i> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the routing information as it was received through a particular neighbor using a particular dynamic routing protocol.
Options	<p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>protocol neighbor-address</i>—Protocol transmitting the route (bgp, dvmrp, msdp, pim, rip, or ripng) and address of the neighboring router from which the route entry was received.</p>
Additional Information	The output displays the selected routes and the attributes with which they were received, but does not show the effects of import policy on the routing attributes.
Required Privilege Level	view
List of Sample Output	<p>show route receive-protocol bgp on page 521</p> <p>show route receive-protocol bgp extensive on page 522</p> <p>show route receive-protocol bgp extensive on page 522</p> <p>show route receive-protocol bgp detail (Layer 2 VPN) on page 523</p> <p>show route receive-protocol bgp extensive (Layer 2 VPN) on page 523</p> <p>show route receive-protocol bgp (Layer 3 VPN) on page 524</p> <p>show route receive-protocol bgp detail (Layer 3 VPN) on page 524</p> <p>show route receive-protocol bgp extensive (Layer 3 VPN) on page 525</p>
Output Fields	Table 126 on page 519 describes the output fields for the show route receive-protocol command. Output fields are listed in the approximate order in which they appear.

Table 126: show route receive-protocol Output Fields

Field Name	Field Description	Level of Output
<i>routing-table-name</i>	Name of the routing table—for example, inet.0 .	All levels
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.	All levels

Table 126: show route receive-protocol Output Fields (*continued*)

Field Name	Field Description	Level of Output
<i>number routes</i>	Number of routes in the routing table and total number of routes in the following states: <ul style="list-style-type: none"> • active • holddown (routes in that are pending state before being declared inactive) • hidden (the routes are not used because of a routing policy) 	All levels
Prefix	Destination prefix.	none brief
MED	Multiple exit discriminator value included in the route.	none brief
<i>destination-prefix (entry, announced)</i>	Destination prefix. The entry value is the number of routes for this destination, and the announced value is the number of routes being announced for this destination.	detail extensive
Route Distinguisher	64-bit prefix added to IP subnets to make them unique.	detail extensive
Label-Base, range	First label in a block of labels and label block size. A remote PE routing device uses this first label when sending traffic toward the advertising PE routing device.	detail extensive
VPN Label	Virtual private network (VPN) label. Packets are sent between CE and PE routing devices by advertising VPN labels. VPN labels transit over either a Resource Reservation Protocol (RSVP) or a Label Distribution Protocol (LDP) label-switched path (LSP) tunnel.	detail extensive
Next hop	Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.	All levels
Localpref or Lclpref	Local preference value included in the route.	All levels

Table 126: show route receive-protocol Output Fields (*continued*)

Field Name	Field Description	Level of Output
AS path	<p>Autonomous system (AS) path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path originated:</p> <ul style="list-style-type: none"> • I—IGP. • E—EGP. • ?—Incomplete; typically, the AS path was aggregated. <p>When AS path numbers are included in the route, the format is as follows:</p> <ul style="list-style-type: none"> • []—Brackets enclose the number that precedes the AS path. This number represents the number of ASs present in the AS path, when calculated as defined in RFC 4271. This value is used the AS-path merge process, as defined in RFC 4893. • []—If more than one AS number is configured on the router, or if AS path prepending is configured, brackets enclose the local AS number associated with the AS path. • { }—Braces enclose AS sets, which are groups of AS numbers in which the order does not matter. A set commonly results from route aggregation. The numbers in each AS set are displayed in ascending order. • ()—Parentheses enclose a confederation. • ([])—Parentheses and brackets enclose a confederation set. <p>NOTE: In Junos OS Release 10.3 and later, the AS path field displays an unrecognized attribute and associated hexadecimal value if BGP receives attribute 128 (attribute set) and you have not configured an independent domain in any routing instance.</p>	All levels
Cluster list	(For route reflected output only) Cluster ID sent by the route reflector.	detail extensive
Originator ID	(For route reflected output only) Address of routing device that originally sent the route to the route reflector.	detail extensive
Communities	Community path attribute for the route. See the Output Field table in the show route detail command for all possible values for this field.	detail extensive
Attrset AS	Number, local preference, and path of the AS that originated the route. These values are stored in the Attrset attribute at the originating routing device.	detail extensive
Layer2-info: encaps	Layer 2 encapsulation (for example, VPLS).	detail extensive
control flags	Control flags: none or Site Down .	detail extensive
mtu	Maximum transmission unit (MTU) of the Layer 2 circuit.	detail extensive

```

show route      user@host> show route receive-protocol bgp 10.255.245.215
receive-protocol bgp
inet.0: 28 destinations, 33 routes (27 active, 0 holddown, 1 hidden)
Prefix                Next hop                MED      Lc1pref    AS path

```

10.22.1.0/24	10.255.245.215	0	100	I
10.22.2.0/24	10.255.245.215	0	100	I

```

show route receive-protocol bgp extensive
user@host> show route receive-protocol bgp 10.255.245.63 extensive
inet.0: 244 destinations, 244 routes (243 active, 0 holddown, 1 hidden)
Prefix          Next hop          MED    Lclpref AS path
1.1.1.0/24 (1 entry, 1 announced)
  Next hop: 10.0.50.3
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.45
165.3.0.0/16 (1 entry, 1 announced)
  Next hop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.68
165.4.0.0/16 (1 entry, 1 announced)
  Next hop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.45
195.1.2.0/24 (1 entry, 1 announced)
  Next hop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.68
inet.2: 63 destinations, 63 routes (63 active, 0 holddown, 0 hidden)
Prefix          Next hop          MED    Lclpref AS path
inet.3: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix          Next hop          MED    Lclpref AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Next hop          MED    Lclpref AS path
mpls.0: 48 destinations, 48 routes (48 active, 0 holddown, 0 hidden)

show route receive-protocol bgp extensive
user@host> show route receive-protocol bgp 207.17.136.192 table inet.0 66.117.68.0/24 extensive
inet.0: 227315 destinations, 227316 routes (227302 active, 0 holddown, 13 hidden)
* 66.117.63.0/24 (1 entry, 1 announced)
  Nexthop: 207.17.136.29
  Localpref: 100
  AS path: AS2 PA[6]: 14203 2914 3356 29748 33437 AS_TRANS
  AS path: AS4 PA[2]: 33437 393219
  AS path: Merged[6]: 14203 2914 3356 29748 33437 393219 I
  Communities: 2914:420

```


**show route
receive-protocol bgp
detail (Layer 2 VPN)**

```
user@host> show route receive-protocol bgp 10.255.14.171 detail
inet.0: 68 destinations, 68 routes (67 active, 0 holddown, 1 hidden)
Prefix          Nexthop          MED      Lclpref AS path
inet.3: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
mpls.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
frame-vpn.l2vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0
hidden)
Prefix          Nexthop          MED      Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 1 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100
  AS path: I
  Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
  control flags: 0, mtu: 0
bgp.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 0 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100
  AS path: I
  Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
  control flags:0, mtu: 0
```

**show route
receive-protocol bgp
extensive (Layer 2
VPN)**

```
user@host> show route receive-protocol bgp 10.255.14.171 extensive
inet.0: 68 destinations, 68 routes (67 active, 0 holddown, 1 hidden)
Prefix          Nexthop          MED      Lclpref AS path
inet.3: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
mpls.0: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
frame-vpn.l2vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 1 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100
  AS path: I
  Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
  control flags:0, mtu: 0
bgp.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED      Lclpref AS path
10.255.245.35:1:5:1/96 (1 entry, 0 announced)
  Route Distinguisher: 10.255.245.35:1
  Label-base : 800000, range : 4, status-vector : 0x0
  Nexthop: 10.255.245.35
  Localpref: 100
  AS path: I
  Communities: target:65299:100 Layer2-info: encaps:FRAME RELAY,
  control flags:0, mtu: 0
```

**show route
receive-protocol bgp
(Layer 3 VPN)**

```
user@host> show route receive-protocol bgp 10.255.14.171
inet.0: 33 destinations, 33 routes (32 active, 0 holddown, 1 hidden)
Prefix      Nexthop      MED      Lclpref AS path
inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Prefix      Nexthop      MED      Lclpref AS path
VPN-A.inet.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
Prefix      Nexthop      MED      Lclpref AS path
10.255.14.175/32  10.255.14.171      100 2 I
10.255.14.179/32  10.255.14.171      2      100 I
VPN-B.inet.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
Prefix      Nexthop      MED      Lclpref AS path
10.255.14.175/32  10.255.14.171      100 2 I
10.255.14.177/32  10.255.14.171      100 I
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix      Nexthop      MED      Lclpref AS path
mpls.0: 9 destinations, 9 routes (9 active, 0 holddown, 0 hidden)
Prefix      Nexthop      MED      Lclpref AS path
bgp.l3vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
Prefix      Nexthop      MED      Lclpref AS path
10.255.14.171:300:10.255.14.177/32
                  10.255.14.171      100 I
10.255.14.171:100:10.255.14.179/32
                  10.255.14.171      2      100 I
10.255.14.171:200:10.255.14.175/32
                  10.255.14.171      100 2 I
```

**show route
receive-protocol bgp
detail (Layer 3 VPN)**

```
user@host> show route receive-protocol bgp 10.255.14.174 detail
inet.0: 16 destinations, 17 routes (15 active, 0 holddown, 1 hidden)
inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
vpna.inet.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
* 10.49.0.0/30 (1 entry, 1 announced)
  Route Distinguisher: 10.255.14.176:2
  VPN Label: 101264
  Nexthop: 10.255.14.174
  Localpref: 100
  AS path: I
  Communities: target:200:100
  AttrSet AS: 100
    Localpref: 100
    AS path: I
* 10.255.14.172/32 (1 entry, 1 announced)
  Route Distinguisher: 10.255.14.176:2
  VPN Label: 101280
  Nexthop: 10.255.14.174
  Localpref: 100
  AS path: I
  Communities: target:200:100
  AttrSet AS: 100
    Localpref: 100
    AS path: I
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
mpls.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
bgp.l3vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
* 10.255.14.174:2:10.49.0.0/30 (1 entry, 0 announced)
  Route Distinguisher: 10.255.14.174:2
  VPN Label: 101264
  Nexthop: 10.255.14.174
  Localpref: 100
  AS path: I
  Communities: target:200:100
```

```

AttrSet AS: 100
  Localpref: 100
  AS path: I
* 10.255.14.174:2:10.255.14.172/32 (1 entry, 0 announced)
  Route Distinguisher: 10.255.14.174:2
  VPN Label: 101280
  Nexthop: 10.255.14.174
  Localpref: 100
  AS path: I
  Communities: target:200:100
AttrSet AS: 100
  Localpref: 100
  AS path: I
inet6.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)

show route receive-protocol bgp extensive (Layer 3 VPN)
user@host> show route receive-protocol bgp 10.255.245.63 extensive
inet.0: 244 destinations, 244 routes (243 active, 0 holddown, 1 hidden)
Prefix          Nexthop          MED    Lclpref AS path
1.1.1.0/24 (1 entry, 1 announced)
  Nexthop: 10.0.50.3
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.45
165.3.0.0/16 (1 entry, 1 announced)
  Nexthop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.68
165.4.0.0/16 (1 entry, 1 announced)
  Nexthop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.45
195.1.2.0/24 (1 entry, 1 announced)
  Nexthop: 111.222.5.254
  Localpref: 100
  AS path: I <Originator>
  Cluster list: 10.2.3.1
  Originator ID: 10.255.245.68
inet.2: 63 destinations, 63 routes (63 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
inet.3: 10 destinations, 10 routes (10 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Prefix          Nexthop          MED    Lclpref AS path
mpls.0: 48 destinations, 48 routes (48 active, 0 holddown, 0 hidden)

```

show route resolution

Syntax	<code>show route resolution</code> <code><brief detail extensive summary></code> <code><index <i>index</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><prefix></code> <code><table <i>routing-table-name</i>></code> <code><unresolved></code>
Syntax (EX Series Switch)	<code>show route resolution</code> <code><brief detail extensive summary></code> <code><index <i>index</i>></code> <code><prefix></code> <code><table <i>routing-table-name</i>></code> <code><unresolved></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the entries in the next-hop resolution database. This database provides for recursive resolution of next hops through other prefixes in the routing table.
Options	<p><code>none</code>—Display standard information about all entries in the next-hop resolution database.</p> <p><code>brief detail extensive summary</code>—(Optional) Display the specified level of output.</p> <p><code>index <i>index</i></code>—(Optional) Show the index of the resolution tree.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><code>prefix <i>network/destination-prefix</i></code>—(Optional) Display database entries for the specified address.</p> <p><code>table <i>routing-table-name</i></code>—(Optional) Display information about a particular routing table (for example, <code>inet.0</code>) where policy-based export is currently enabled. (For information about the different types of routing tables, see the <i>Junos Routing Protocols Configuration Guide</i>.)</p> <p><code>unresolved</code>—(Optional) Display routes that could not be resolved.</p>
Required Privilege Level	view
List of Sample Output	<code>show route resolution detail</code> on page 527 <code>show route resolution summary</code> on page 528 <code>show route resolution unresolved</code> on page 528

Output Fields Table 127 on page 527 describes the output fields for the **show route resolution** command. Output fields are listed in the approximate order in which they appear.

Table 127: show route resolution Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table whose prefixes are resolved using the entries in the route resolution database. For routing table groups, this is the name of the primary routing table whose prefixes are resolved using the entries in the route resolution database.
Tree index	Tree index identifier.
Nodes	Number of nodes in the tree.
Reference count	Number of references made to the next hop.
Contributing routing tables	Routing tables used for next-hop resolution.
Originating RIB	Name of the routing table whose active route was used to determine the forwarding next-hop entry in the resolution database. For example, in the case of inet.0 resolving via inet.0 and inet.3 , this field indicates which routing table, inet.0 or inet.3 , provided the best path for a particular prefix.
Metric	Metric associated with the forwarding next hop.
Node path count	Number of nodes in the path.
Forwarding next hops	Number of forwarding next hops. The forwarding next hop is the network layer address of the directly reachable neighboring system (if applicable) and the interface used to reach it.

**show route resolution
detail**

```

user@host> show route resolution detail
Tree Index: 1, Nodes 0, Reference Count 1
Contributing routing tables: inet.3
Tree Index: 2, Nodes 23, Reference Count 1
Contributing routing tables: inet.0 inet.3
10.10.0.0/16 Originating RIB: inet.0
  Node path count: 1
  Forwarding nexthops: 1
10.31.1.0/30 Originating RIB: inet.0
  Node path count: 1
  Forwarding nexthops: 1
10.31.1.1/32 Originating RIB: inet.0
  Node path count: 1
  Forwarding nexthops: 0
10.31.1.4/30 Originating RIB: inet.0
  Node path count: 1
  Forwarding nexthops: 1
10.31.1.5/32 Originating RIB: inet.0
  Node path count: 1
  Forwarding nexthops: 0
10.31.2.0/30 Originating RIB: inet.0

```

```
Metric: 2 Node path count: 1
Forwarding nexthops: 2
10.31.11.0/24 Originating RIB: inet.0
Node path count: 1
Forwarding nexthops: 1
```

**show route resolution
summary**

```
user@host> show route resolution summary
Tree Index: 1, Nodes 24, Reference Count 1
Contributing routing tables: :voice.inet.0 :voice.inet.3
Tree Index: 2, Nodes 2, Reference Count 1
Contributing routing tables: inet.3
Tree Index: 3, Nodes 43, Reference Count 1
Contributing routing tables: inet.0 inet.3
```

**show route resolution
unresolved**

```
user@host> show route resolution unresolved
Tree Index 1
vt-3/2/0.32769.0      /16
    Protocol Nexthop: 10.255.71.238 Push 800000
    Indirect nexthop: 0 -
vt-3/2/0.32772.0      /16
    Protocol Nexthop: 10.255.70.103 Push 800008
    Indirect nexthop: 0 -
Tree Index 2
```

show route snooping

Syntax	<pre>show route snooping <brief detail extensive terse> <all> <best address/prefix> <exact address> <range prefix-range> <summary> <table table-name></pre>
Release Information	<p>Command introduced in Junos OS Release 8.5.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p>
Description	Display the entries in the routing table that were learned from snooping.
Options	<p>none—Display the entries in the routing table that were learned from snooping.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief.</p> <p>all—(Optional) Display all entries, including hidden entries.</p> <p>best address/prefix—(Optional) Display the longest match for the provided address and optional prefix.</p> <p>exact address/prefix—(Optional) Display exact matches for the provided address and optional prefix.</p> <p>range prefix-range—(Optional) Display information for the provided address range.</p> <p>summary—(Optional) Display route snooping summary statistics.</p> <p>table table-name—(Optional) Display information for the named table.</p>
Required Privilege Level	view
List of Sample Output	show route snooping detail on page 529
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route snooping detail	<pre>user@host> show route snooping detail __+domainAll___.inet.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden) 224.0.0.2/32 (1 entry, 1 announced) *IGMP Preference: 0 Next hop type: MultiRecv Next-hop reference count: 4 State: <Active NoReadvrt Int> Age: 2:24 Task: IGMP Announcement bits (1): 0-KRT</pre>

```
AS path: I

224.0.0.22/32 (1 entry, 1 announced)
  *IGMP Preference: 0
    Next hop type: MultiRecv
    Next-hop reference count: 4
    State: <Active NoReadvrt Int>
    Age: 2:24
    Task: IGMP
    Announcement bits (1): 0-KRT
    AS path: I

__+domainAll__.inet.1: 36 destinations, 36 routes (36 active, 0 holddown, 0 hidden)

224.0.0.0.0.0.0.0/24 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4), Next hop index: 1048584
    Next-hop reference count: 4
    State: <Active Int>
    Age: 2:24
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.2.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:13
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.3.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:15
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.4.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:17
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.5.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 1:58
    Task: MC
```



```
Announcement bits (1): 0-KRT
AS path: I

225.0.0.6.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:14
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.7.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:12
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.9.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:13
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

225.0.0.10.11.11.11.100.3.9.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:15
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

226.0.0.1.11.11.11.100.3.10.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:09
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

226.0.0.2.11.11.11.100.3.10.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 8
    Task: MC
    Announcement bits (1): 0-KRT
```

```
AS path: I

226.0.0.4.11.11.11.100.3.10.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:10
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

226.0.0.8.11.11.11.100.3.10.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:12
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

226.0.0.10.11.11.11.100.3.10.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 1:56
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

227.0.0.1.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:10
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

227.0.0.2.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:13
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

227.0.0.3.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:16
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I
```

227.0.0.4.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 2:15
Task: MC
Announcement bits (1): 0-KRT
AS path: I

227.0.0.5.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 1:57
Task: MC
Announcement bits (1): 0-KRT
AS path: I

227.0.0.7.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 1:57
Task: MC
Announcement bits (1): 0-KRT
AS path: I

227.0.0.8.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 2:10
Task: MC
Announcement bits (1): 0-KRT
AS path: I

227.0.0.10.11.11.11.100.3.11.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 2:15
Task: MC
Announcement bits (1): 0-KRT
AS path: I

228.0.0.1.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 2:09
Task: MC
Announcement bits (1): 0-KRT
AS path: I

228.0.0.2.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 2:18
Task: MC
Announcement bits (1): 0-KRT
AS path: I

228.0.0.7.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 2:11
Task: MC
Announcement bits (1): 0-KRT
AS path: I

228.0.0.8.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 2:17
Task: MC
Announcement bits (1): 0-KRT
AS path: I

228.0.0.9.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 8
Task: MC
Announcement bits (1): 0-KRT
AS path: I

228.0.0.10.11.11.11.100.3.12.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 2:12
Task: MC
Announcement bits (1): 0-KRT
AS path: I

229.0.0.3.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)

*Multicast Preference: 180
Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 2:09
Task: MC
Announcement bits (1): 0-KRT
AS path: I

229.0.0.4.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)

```
*Multicast Preference: 180
  Next hop type: Multicast (IPv4)
  Next-hop reference count: 113
  State: <Active Int>
  Age: 2:12
  Task: MC
  Announcement bits (1): 0-KRT
  AS path: I

229.0.0.5.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 9
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.6.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:15
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.7.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:15
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.8.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:15
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.9.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
    Next hop type: Multicast (IPv4)
    Next-hop reference count: 113
    State: <Active Int>
    Age: 2:14
    Task: MC
    Announcement bits (1): 0-KRT
    AS path: I

229.0.0.10.11.11.11.100.3.13.0.0/80 (1 entry, 1 announced)
  *Multicast Preference: 180
```

Next hop type: Multicast (IPv4)
Next-hop reference count: 113
State: <Active Int>
Age: 2:13
Task: MC
Announcement bits (1): 0-KRT
AS path: I

show route source-gateway

Syntax	show route source-gateway <i>address</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route source-gateway <i>address</i> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the entries in the routing table that were learned from a particular address. The Source field in the show route detail command output lists the source for each route, if known.
Options	brief detail extensive terse—(Optional) Display the specified level of output. If you do not specify a level of output, the system defaults to brief . <i>address</i> —IP address of the system. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show route source-gateway on page 537 show route source-gateway detail on page 538 show route source-gateway extensive on page 540
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
show route source-gateway	<pre> user@host> show route source-gateway 10.255.70.103 inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden) Restart Complete inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden) Restart Complete private1___.inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden) iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden) Restart Complete mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden) Restart Complete inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden) Restart Complete private1___.inet6.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden) </pre>

```
green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both
```

```
10.255.70.103:1:3:1/96
    *[BGP/170] 12:12:24, localpref 100, from 10.255.70.103
    AS path: I
    > via so-0/3/0.0, label-switched-path green-r1-r3
```

```
red.l2vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both
```

```
10.255.70.103:2:3:1/96
    *[BGP/170] 12:12:24, localpref 0, from 10.255.70.103
    AS path: I
    > via so-0/3/0.0, label-switched-path green-r1-r3
```

```
bgp.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
+ = Active Route, - = Last Active, * = Both
```

```
10.255.70.103:1:3:1/96
    *[BGP/170] 12:12:24, localpref 100, from 10.255.70.103
    AS path: I
    > via so-0/3/0.0, label-switched-path green-r1-r3
```

```
10.255.70.103:2:3:1/96
    *[BGP/170] 12:12:24, localpref 0, from 10.255.70.103
    AS path: I
    > via so-0/3/0.0, label-switched-path green-r1-r3
```

show route source-gateway detail

```
user@host> show route source-gateway 10.255.70.103 detail
inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden)
Restart Complete

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden)
Restart Complete

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
Restart Complete
green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)

Restart Complete
10.255.70.103:1:3:1/96 (1 entry, 1 announced)
    *BGP    Preference: 170/-101
            Route Distinguisher: 10.255.70.103:1
            Next-hop reference count: 7
            Source: 10.255.70.103
            Protocol next hop: 10.255.70.103
            Indirect next hop: 2 no-forward
            State: <Secondary Active Int Ext>
```



```

Local AS: 69 Peer AS: 69
Age: 12:14:00 Metric2: 1
Task: BGP_69.10.255.70.103+179
Announcement bits (1): 0-green-l2vpn
AS path: I
Communities: target:11111:1 Layer2-info: encaps:VPLS,
control flags:, mtu: 0
Label-base: 800008, range: 8
Localpref: 100
Router ID: 10.255.70.103
Primary Routing Table bgp.l2vpn.0

red.l2vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
Restart Complete

10.255.70.103:2:3:1/96 (1 entry, 1 announced)
*BGP Preference: 170/-1
Route Distinguisher: 10.255.70.103:2
Next-hop reference count: 7
Source: 10.255.70.103
Protocol next hop: 10.255.70.103
Indirect next hop: 2 no-forward
State: <Secondary Active Int Ext>
Local AS: 69 Peer AS: 69
Age: 12:14:00 Metric2: 1
Task: BGP_69.10.255.70.103+179
Announcement bits (1): 0-red-l2vpn
AS path: I
Communities: target:11111:2 Layer2-info: encaps:VPLS,
control flags:Site-Down, mtu: 0
Label-base: 800016, range: 8
Localpref: 0
Router ID: 10.255.70.103
Primary Routing Table bgp.l2vpn.0

bgp.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

10.255.70.103:1:3:1/96 (1 entry, 0 announced)
*BGP Preference: 170/-101
Route Distinguisher: 10.255.70.103:1
Next-hop reference count: 7
Source: 10.255.70.103
Protocol next hop: 10.255.70.103
Indirect next hop: 2 no-forward
State: <Active Int Ext>
Local AS: 69 Peer AS: 69
Age: 12:14:00 Metric2: 1
Task: BGP_69.10.255.70.103+179
AS path: I
Communities: target:11111:1 Layer2-info: encaps:VPLS, control
flags:, mtu: 0
Label-base: 800008, range: 8
Localpref: 100
Router ID: 10.255.70.103
Secondary Tables: green.l2vpn.0
10.255.70.103:2:3:1/96 (1 entry, 0 announced)
*BGP Preference: 170/-1
Route Distinguisher: 10.255.70.103:2
Next-hop reference count: 7
Source: 10.255.70.103

```

```

Protocol next hop: 10.255.70.103
Indirect next hop: 2 no-forward
State: <Active Int Ext>
Local AS: 69 Peer AS: 69
Age: 12:14:00 Metric2: 1
Task: BGP_69.10.255.70.103+179
AS path: I
Communities: target:11111:2 Layer2-info: encaps:VPLS,
control flags:Site-Down,
mtu: 0
Label-base: 800016, range: 8
Localpref: 0
Router ID: 10.255.70.103
Secondary Tables: red.l2vpn.0

```

```

show route      user@host> show route source-gateway 10.255.70.103 extensive
source-gateway inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden)
extensive       Restart Complete

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete

private1__inet.0: 2 destinations, 3 routes (2 active, 0 holddown, 0 hidden)

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden)
Restart Complete

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
Restart Complete

green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
10.255.70.103:1:3:1/96 (1 entry, 1 announced)
    *BGP      Preference: 170/-101
              Route Distinguisher: 10.255.70.103:1
              Next-hop reference count: 7
              Source: 10.255.70.103
              Protocol next hop: 10.255.70.103
              Indirect next hop: 2 no-forward
              State: <Secondary Active Int Ext>
              Local AS: 69 Peer AS: 69
              Age: 12:15:24 Metric2: 1
              Task: BGP_69.10.255.70.103+179
              Announcement bits (1): 0-green-l2vpn
              AS path: I
              Communities: target:11111:1 Layer2-info: encaps:VPLS,
              control flags:, mtu: 0
              Label-base: 800008, range: 8
              Localpref: 100
              Router ID: 10.255.70.103
              Primary Routing Table bgp.l2vpn.0

red.l2vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
Restart Complete

10.255.70.103:2:3:1/96 (1 entry, 1 announced)
    *BGP      Preference: 170/-1
              Route Distinguisher: 10.255.70.103:2

```

```

Next-hop reference count: 7
Source: 10.255.70.103
Protocol next hop: 10.255.70.103
Indirect next hop: 2 no-forward
State: <Secondary Active Int Ext>
Local AS: 69 Peer AS: 69
Age: 12:15:24 Metric2: 1
Task: BGP_69.10.255.70.103+179
Announcement bits (1): 0-red-l2vpn
AS path: I
Communities: target:11111:2 Layer2-info: encaps:VPLS,
control flags:Site-Down, mtu: 0
Label-base: 800016, range: 8
Localpref: 0
Router ID: 10.255.70.103
Primary Routing Table bgp.l2vpn.0

bgp.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete

10.255.70.103:1:3:1/96 (1 entry, 0 announced)
  *BGP Preference: 170/-101
    Route Distinguisher: 10.255.70.103:1
    Next-hop reference count: 7
    Source: 10.255.70.103
    Protocol next hop: 10.255.70.103
    Indirect next hop: 2 no-forward
    State: <Active Int Ext>
    Local AS: 69 Peer AS: 69
    Age: 12:15:24 Metric2: 1
    Task: BGP_69.10.255.70.103+179
    AS path: I
    Communities: target:11111:1 Layer2-info: encaps:VPLS,
    control flags:, mtu: 0
    Label-base: 800008, range: 8
    Localpref: 100
    Router ID: 10.255.70.103
    Secondary Tables: green.l2vpn.0
    Indirect next hops: 1
      Protocol next hop: 10.255.70.103 Metric: 2
      Indirect next hop: 2 no-forward
      Indirect path forwarding next hops: 1
    Next hop: via so-0/3/0.0 weight 0x1
      10.255.70.103/32 Originating RIB: inet.3
      Metric: 2 Node path count: 1
      Forwarding nexthops: 1
      Nexthop: via so-0/3/0.0

10.255.70.103:2:3:1/96 (1 entry, 0 announced)
  *BGP Preference: 170/-1
    Route Distinguisher: 10.255.70.103:2
    Next-hop reference count: 7
    Source: 10.255.70.103
    Protocol next hop: 10.255.70.103
    Indirect next hop: 2 no-forward
    State: <Active Int Ext>
    Local AS: 69 Peer AS: 69
    Age: 12:15:24 Metric2: 1
    Task: BGP_69.10.255.70.103+179
    AS path: I
    Communities: target:11111:2 Layer2-info: encaps:VPLS,

```

```
control flags:Site-Down,
mtu: 0
Label-base: 800016, range: 8
Localpref: 0
Router ID: 10.255.70.103
Secondary Tables: red.l2vpn.0
Indirect next hops: 1
    Protocol next hop: 10.255.70.103 Metric: 2
    Indirect next hop: 2 no-forward
    Indirect path forwarding next hops: 1
Next hop:      via so-0/3/0.0 weight 0x1
    10.255.70.103/32 Originating RIB: inet.3
    Metric: 2                               Node path count: 1
    Forwarding nexthops: 1
    Nexthop: via so-0/3/0.0
```

show route summary

Syntax	show route summary <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route summary
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display summary statistics about the entries in the routing table.
Options	none—Display summary statistics about the entries in the routing table. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show route summary on page 544
Output Fields	Table 128 on page 543 lists the output fields for the show route summary command. Output fields are listed in the approximate order in which they appear.

Table 128: show route summary Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, inet.0).
destinations	Number of destinations for which there are routes in the routing table.
routes	Number of routes in the routing table: <ul style="list-style-type: none"> active—Number of routes that are active. holddown—Number of routes that are in the hold-down state before being declared inactive. hidden—Number of routes not used because of routing policy.
Direct	Routes on the directly connected network.
Local	Local routes.
<i>protocol-name</i>	Name of the protocol from which the route was learned. For example, OSPF , RSVP , and Static .

```
show route summary  user@host> show route summary
Autonomous system number: 69
Router ID: 10.255.71.52
Maximum-ECMP: 32
inet.0: 24 destinations, 25 routes (23 active, 0 holddown, 1 hidden)
Restart Complete
    Direct:      6 routes,      5 active
    Local:      4 routes,      4 active
    OSPF:       5 routes,      4 active
    Static:     7 routes,      7 active
    IGMP:       1 routes,      1 active
    PIM:        2 routes,      2 active

inet.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
Restart Complete
    RSVP:       2 routes,      2 active

iso.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete
    Direct:      1 routes,      1 active

mpls.0: 7 destinations, 7 routes (5 active, 0 holddown, 2 hidden)
Restart Complete
    MPLS:       3 routes,      3 active
    VPLS:       4 routes,      2 active

inet6.0: 5 destinations, 5 routes (5 active, 0 holddown, 0 hidden)
Restart Complete
    Direct:      2 routes,      2 active
    PIM:         2 routes,      2 active
    MLD:         1 routes,      1 active

green.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
    BGP:        2 routes,      2 active
    L2VPN:       2 routes,      2 active

red.l2vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
Restart Complete
    BGP:        2 routes,      2 active
    L2VPN:       1 routes,      1 active

bgp.l2vpn.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
Restart Complete
    BGP:        4 routes,      4 active
```

show route table

Syntax	show route table <i>routing-table-name</i> <brief detail extensive terse> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route table <i>routing-table-name</i> <brief detail extensive terse>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the route entries in a particular routing table.
Options	<p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>routing-table-name</i>—Display information about a particular routing table (for example, inet.0) where policy-based export is currently enabled. (For information about the different types of routing tables, see the <i>Junos Routing Protocols Configuration Guide</i>.)</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show route summary on page 543
List of Sample Output	<p>show route table bgp.l2.vpn on page 546</p> <p>show route table bgp.l3vpn.0 on page 546</p> <p>show route table bgp.l3vpn.0 detail on page 546</p> <p>show route table inet.0 on page 547</p> <p>show route table inet6.0 on page 548</p> <p>show route table inet6.3 on page 548</p> <p>show route table l2circuit.0 on page 548</p> <p>show route table mpls on page 549</p> <p>show route table mpls extensive on page 549</p> <p>show route table mpls.0 on page 549</p> <p>show route table vpls_1 detail on page 550</p> <p>show route table vpn-a on page 550</p> <p>show route table vpn-a.mdt.0 on page 550</p> <p>show route table VPN-AB.inet.0 on page 550</p> <p>show route table VPN_blue.mvpn-inet6.0 on page 551</p> <p>show route table VPN-A detail on page 551</p>
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.

```

show route table      user@host> show route table bgp.l2vpn
bgp.l2vpn             bgp.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
                        + = Active Route, - = Last Active, * = Both

192.168.24.1:1:4:1/96
                        *[BGP/170] 01:08:58, localpref 100, from 192.168.24.1
                        AS path: I
                        > to 10.0.16.2 via fe-0/0/1.0, label-switched-path am

show route table      user@host> show route table bgp.l3vpn.0
bgp.l3vpn.0           bgp.l3vpn.0: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
                        + = Active Route, - = Last Active, * = Both

10.255.71.15:100:10.255.71.17/32
                        *[BGP/170] 00:03:59, MED 1, localpref 100, from
10.255.71.15
                        AS path: I
                        > via so-2/1/0.0, Push 100020, Push 100011(top)
10.255.71.15:200:10.255.71.18/32
                        *[BGP/170] 00:03:59, MED 1, localpref 100, from
10.255.71.15
                        AS path: I
                        > via so-2/1/0.0, Push 100021, Push 100011(top)

show route table      user@host> show route table bgp.l3vpn.0 detail
bgp.l3vpn.0 detail    bgp.l3vpn.0: 8 destinations, 8 routes (8 active, 0 holddown, 0 hidden)

10.255.245.12:1:4.0.0.0/8 (1 entry, 1 announced)
  *BGP   Preference: 170/-101
        Route Distinguisher: 10.255.245.12:1
        Source: 10.255.245.12
        Next hop: 192.168.208.66 via fe-0/0/0.0, selected
        Label operation: Push 182449
        Protocol next hop: 10.255.245.12
        Push 182449
        Indirect next hop: 863a630 297
        State: <Active Int Ext>
        Local AS: 35 Peer AS: 35
        Age: 12:19 Metric2: 1
        Task: BGP_35.10.255.245.12+179
        Announcement bits (1): 0-BGP.0.0.0.0+179
        AS path: 30 10458 14203 2914 3356 I (Atomic) Aggregator: 3356 4.68.0.11

        Communities: 2914:420 target:11111:1 origin:56:78
        VPN Label: 182449
        Localpref: 100
        Router ID: 10.255.245.12

10.255.245.12:1:4.17.225.0/24 (1 entry, 1 announced)
  *BGP   Preference: 170/-101
        Route Distinguisher: 10.255.245.12:1
        Source: 10.255.245.12
        Next hop: 192.168.208.66 via fe-0/0/0.0, selected
        Label operation: Push 182465
        Protocol next hop: 10.255.245.12
        Push 182465
        Indirect next hop: 863a8f0 305
        State: <Active Int Ext>
        Local AS: 35 Peer AS: 35
        Age: 12:19 Metric2: 1

```



```

Task: BGP_35.10.255.245.12+179
Announcement bits (1): 0-BGP.0.0.0.0+179
AS path: 30 10458 14203 2914 11853 11853 11853 6496 6496 6496 6496 6496 6496 I
Communities: 2914:410 target:12:34 target:11111:1 origin:12:34
VPN Label: 182465
Localpref: 100
Router ID: 10.255.245.12

10.255.245.12:1:4.17.226.0/23 (1 entry, 1 announced)
*BGP Preference: 170/-101
Route Distinguisher: 10.255.245.12:1
Source: 10.255.245.12
Next hop: 192.168.208.66 via fe-0/0/0.0, selected
Label operation: Push 182465
Protocol next hop: 10.255.245.12
Push 182465
Indirect next hop: 86bd210 330
State: <Active Int Ext>
Local AS: 35 Peer AS: 35
Age: 12:19 Metric2: 1
Task: BGP_35.10.255.245.12+179
Announcement bits (1): 0-BGP.0.0.0.0+179
AS path: 30 10458 14203 2914 11853 11853 11853 6496 6496 6496 6496 6496
6496 I
Communities: 2914:410 target:12:34 target:11111:1 origin:12:34
VPN Label: 182465
Localpref: 100
Router ID: 10.255.245.12

10.255.245.12:1:4.17.251.0/24 (1 entry, 1 announced)
*BGP Preference: 170/-101
Route Distinguisher: 10.255.245.12:1
Source: 10.255.245.12
Next hop: 192.168.208.66 via fe-0/0/0.0, selected
Label operation: Push 182465
Protocol next hop: 10.255.245.12
Push 182465
Indirect next hop: 86bd210 330
State: <Active Int Ext>
Local AS: 35 Peer AS: 35
Age: 12:19 Metric2: 1
Task: BGP_35.10.255.245.12+179
Announcement bits (1): 0-BGP.0.0.0.0+179
AS path: 30 10458 14203 2914 11853 11853 11853 6496 6496 6496 6496 6496
6496 I
Communities: 2914:410 target:12:34 target:11111:1 origin:12:34
VPN Label: 182465
Localpref: 100

```

show route table inet.0

```

user@host> show route table inet.0
inet.0: 12 destinations, 12 routes (11 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

0.0.0.0/0          *[Static/5] 00:51:57
                   > to 111.222.5.254 via fxp0.0
1.0.0.1/32        *[Direct/0] 00:51:58
                   > via at-5/3/0.0
1.0.0.2/32        *[Local/0] 00:51:58
                   Local

```

```

12.12.12.21/32    *[Local/0] 00:51:57
                  Reject
13.13.13.13/32    *[Direct/0] 00:51:58
                  > via t3-5/2/1.0
13.13.13.14/32    *[Local/0] 00:51:58
                  Local
13.13.13.21/32    *[Local/0] 00:51:58
                  Local
13.13.13.22/32    *[Direct/0] 00:33:59
                  > via t3-5/2/0.0
127.0.0.1/32      [Direct/0] 00:51:58
                  > via lo0.0
111.222.5.0/24    *[Direct/0] 00:51:58
                  > via fxp0.0
111.222.5.81/32   *[Local/0] 00:51:58
                  Local

```

```

show route table inet6.0 user@host> show route table inet6.0
inet6.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Route, * = Both

```

```

fec0:0:0:3::/64 *[Direct/0] 00:01:34
>via fe-0/1/0.0

```

```

fec0:0:0:3::/128 *[Local/0] 00:01:34
>Local

```

```

fec0:0:0:4::/64 *[Static/5] 00:01:34
>to fec0:0:0:3::ffff via fe-0/1/0.0

```

```

show route table inet6.3 user@router> show route table inet6.3
inet6.3: 2 destinations, 2 routes (2 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

```

```

::10.255.245.195/128
                    *[LDP/9] 00:00:22, metric 1
                    > via so-1/0/0.0
::10.255.245.196/128
                    *[LDP/9] 00:00:08, metric 1
                    > via so-1/0/0.0, Push 100008

```

```

show route table l2circuit.0 user@host> show route table l2circuit.0
l2circuit.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

```

```

10.1.1.195:NoCtrlWord:1:1:Local/96
                    *[L2CKT/7] 00:50:47
                    > via so-0/1/2.0, Push 100049
                    via so-0/1/3.0, Push 100049
10.1.1.195:NoCtrlWord:1:1:Remote/96
                    *[LDP/9] 00:50:14
                    Discard
10.1.1.195:CtrlWord:1:2:Local/96
                    *[L2CKT/7] 00:50:47
                    > via so-0/1/2.0, Push 100049
                    via so-0/1/3.0, Push 100049
10.1.1.195:CtrlWord:1:2:Remote/96

```

```
*[LDP/9] 00:50:14
Discard
```

```
show route table mpls user@host> show route table mpls
mpls.0: 4 destinations, 4 routes (4 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
```

```
0          *[MPLS/0] 00:13:55, metric 1
            Receive
1          *[MPLS/0] 00:13:55, metric 1
            Receive
2          *[MPLS/0] 00:13:55, metric 1
            Receive
1024       *[VPN/0] 00:04:18
            to table red.inet.0, Pop
```

```
show route table mpls extensive user@host> show route table mpls extensive
100000 (1 entry, 1 announced)
TSI:
KRT in-kernel 100000 /36 -> {so-1/0/0.0}
      *LDP      Preference: 9
                Next hop: via so-1/0/0.0, selected
                Pop
                State: <Active Int>
                Age: 29:50      Metric: 1
                Task: LDP
                Announcement bits (1): 0-KRT
                AS path: I
                Prefixes bound to route: 10.0.0.194/32
```

```
show route table mpls.0 user@host> show route table mpls.0
mpls.0: 11 destinations, 11 routes (11 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both
```

```
0          *[MPLS/0] 00:45:09, metric 1
            Receive
1          *[MPLS/0] 00:45:09, metric 1
            Receive
2          *[MPLS/0] 00:45:09, metric 1
            Receive
100000     *[L2VPN/7] 00:43:04
            > via so-0/1/0.1, Pop
100001     *[L2VPN/7] 00:43:03
            > via so-0/1/0.2, Pop      Offset: 4
100002     *[LDP/9] 00:43:22, metric 1
            via so-0/1/2.0, Pop
            > via so-0/1/3.0, Pop
100002(S=0) *[LDP/9] 00:43:22, metric 1
            via so-0/1/2.0, Pop
            > via so-0/1/3.0, Pop
100003     *[LDP/9] 00:43:22, metric 1
            > via so-0/1/2.0, Swap 100002
            via so-0/1/3.0, Swap 100002
100004     *[LDP/9] 00:43:16, metric 1
            via so-0/1/2.0, Swap 100049
            > via so-0/1/3.0, Swap 100049
so-0/1/0.1 *[L2VPN/7] 00:43:04
            > via so-0/1/2.0, Push 100001, Push 100049(top)
            via so-0/1/3.0, Push 100001, Push 100049(top)
so-0/1/0.2 *[L2VPN/7] 00:43:03
```

```

        via so-0/1/2.0, Push 100000, Push 100049(top) Offset: -4
    > via so-0/1/3.0, Push 100000, Push 100049(top) Offset: -4

```

```

show route table vpls_1 user@host> show route table vpls_1 detail
detail vpls_1.l2vpn.0: 1 destinations, 1 routes (1 active, 0 holddown, 0 hidden)
Restart Complete

```

```

1.1.1.11:1000:1:1/96 (1 entry, 1 announced)
*L2VPN Preference: 170/-1
Receive table: vpls_1.l2vpn.0
Next-hop reference count: 2
State: <Active Int Ext>
Age: 4:29:47 Metric2: 1
Task: vpls_1-l2vpn
Announcement bits (1): 1-BGP.0.0.0+179
AS path: I
Communities: Layer2-info: encaps:VPLS, control flags:Site-Down
Label-base: 800000, range: 8, status-vector: 0xFF

```

```

show route table vpn-a user@host> show route table vpn-a
vpn-a.l2vpn.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)

+ = Active Route, - = Last Active, * = Both
192.168.16.1:1:1/96
    *[VPN/7] 05:48:27
    Discard
192.168.24.1:1:2:1/96
    *[BGP/170] 00:02:53, localpref 100, from 192.168.24.1
    AS path: I
    > to 10.0.16.2 via fe-0/0/1.0, label-switched-path am
192.168.24.1:1:3:1/96
    *[BGP/170] 00:02:53, localpref 100, from 192.168.24.1
    AS path: I
    > to 10.0.16.2 via fe-0/0/1.0, label-switched-path am

```

```

show route table user@host> show route table vpn-a.mdt.0
vpn-a.mdt.0 vpn-a.mdt.0: 3 destinations, 3 routes (3 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

1:1:0:10.255.14.216:232.1.1.1/144
    *[MVPN/70] 01:23:05, metric2 1
    Indirect
1:1:1:10.255.14.218:232.1.1.1/144
    *[BGP/170] 00:57:49, localpref 100, from 10.255.14.218
    AS path: I
    > via so-0/0/0.0, label-switched-path r0e-to-r1
1:1:2:10.255.14.217:232.1.1.1/144
    *[BGP/170] 00:57:49, localpref 100, from 10.255.14.217
    AS path: I
> via so-0/0/1.0, label-switched-path r0-to-r2

```

```

show route table user@host> show route table VPN-AB.inet.0
VPN-AB.inet.0 VPN-AB.inet.0: 8 destinations, 8 routes (8 active, 0 holddown, 0 hidden)
+ = Active Route, - = Last Active, * = Both

10.39.1.0/30      *[OSPF/10] 00:07:24, metric 1
                  > via so-7/3/1.0
10.39.1.4/30      *[Direct/0] 00:08:42
                  > via so-5/1/0.0
10.39.1.6/32      *[Local/0] 00:08:46

```

```

Local
10.255.71.16/32 *[Static/5] 00:07:24
> via so-2/0/0.0
10.255.71.17/32 *[BGP/170] 00:07:24, MED 1, localpref 100, from
10.255.71.15
AS path: I
> via so-2/1/0.0, Push 100020, Push 100011(top)
10.255.71.18/32 *[BGP/170] 00:07:24, MED 1, localpref 100, from
10.255.71.15
AS path: I
> via so-2/1/0.0, Push 100021, Push 100011(top)
10.255.245.245/32 *[BGP/170] 00:08:35, localpref 100
AS path: 2 I
> to 10.39.1.5 via so-5/1/0.0
10.255.245.246/32 *[OSPF/10] 00:07:24, metric 1
> via so-7/3/1.0

```

show route table VPN_blue.mvpn-inet6.0
 user@host> show route table VPN_blue.mvpn-inet6.0
 vpn_blue.mvpn-inet6.0: 6 destinations, 6 routes (6 active, 0 holddown, 0 hidden)
 + = Active Route, - = Last Active, * = Both

```

1:10.255.2.202:65535:10.255.2.202/432
*[BGP/170] 00:02:37, localpref 100, from 10.255.2.202
AS path: I
> via so-0/1/3.0
1:10.255.2.203:65535:10.255.2.203/432
*[BGP/170] 00:02:37, localpref 100, from 10.255.2.203
AS path: I
> via so-0/1/0.0
1:10.255.2.204:65535:10.255.2.204/432
*[MVPN/70] 00:57:23, metric2 1
Indirect
5:10.255.2.202:65535:128::192.168.90.2:128:ffff::1/432
*[BGP/170] 00:02:37, localpref 100, from 10.255.2.202
AS path: I
> via so-0/1/3.0
6:10.255.2.203:65535:65000:128::10.12.53.12:128:ffff::1/432
*[PIM/105] 00:02:37
Multicast (IPv6)
7:10.255.2.202:65535:65000:128::192.168.90.2:128:ffff::1/432
*[MVPN/70] 00:02:37, metric2 1
Indirect

```

show route table VPN-A detail
 user@host> show route table VPN-A detail
 VPN-AB.inet.0: 8 destinations, 8 routes (8 active, 0 holddown, 0 hidden)
 10.255.179.9/32 (1 entry, 1 announced)
 *BGP Preference: 170/-101
 Route Distinguisher: 10.255.179.13:200
 Next hop type: Indirect
 Next-hop reference count: 5
 Source: 10.255.179.13
 Next hop type: Router, Next hop index: 732
 Next hop: 10.39.1.14 via fe-0/3/0.0, selected
 Label operation: Push 299824, Push 299824(top)
 Protocol next hop: 10.255.179.13
 Push 299824
 Indirect next hop: 8f275a0 1048574
 State: (Secondary Active Int Ext)
 Local AS: 1 Peer AS: 1
 Age: 3:41:06 Metric: 1 Metric2: 1
 Task: BGP_1.10.255.179.13+64309

```
Announcement bits (2): 0-KRT 1-BGP RT Background
AS path: I
Communities: target:1:200 rte-type:0.0.0.0:1:0
Import Accepted
VPN Label: 299824 TTL Action: vrf-ttl-propagate
Localpref: 100
Router ID: 10.255.179.13
Primary Routing Table bgp.13vpn.0
```

show route terse


Syntax	show route terse <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show route terse
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display a high-level summary of the routes in the routing table.
<div>  <p>NOTE: For BGP routes, the show route terse command displays the local preference attribute and MED instead of metric1 and metric2 values. This is mostly due to historical reasons. To display the metric1 and metric2 value of a BGP route, use the show route extensive command.</p> </div>	
Options	<p>none—Display a high-level summary of the routes in the routing table.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show route terse on page 555
Output Fields	Table 129 on page 553 describes the output fields for the show route terse command. Output fields are listed in the approximate order in which they appear.

Table 129: show route terse Output Fields

Field Name	Field Description
<i>routing-table-name</i>	Name of the routing table (for example, <i>inet.0</i>).
<i>number destinations</i>	Number of destinations for which there are routes in the routing table.
<i>number routes</i>	Number of routes in the routing table and total number of routes in the following states: <ul style="list-style-type: none"> active (routes that are active) holddown (routes that are in the pending state before being declared inactive) hidden (routes that are not used because of a routing policy)

Table 129: show route terse Output Fields (*continued*)

Field Name	Field Description
route key	Key for the state of the route: <ul style="list-style-type: none"> • +—A plus sign indicates the active route, which is the route installed from the routing table into the forwarding table. • -—A hyphen indicates the last active route. • *—An asterisk indicates that the route is both the active and the last active route. An asterisk before a to line indicates the best subpath to the route.
A	Active route. An asterisk (*) indicates this is the active route.
Destination	Destination of the route.
P	Protocol through which the route was learned: <ul style="list-style-type: none"> • A—Aggregate • B—BGP • C—CCC • D—Direct • G—GMPLS • I—IS-IS • L—L2CKT, L2VPN, LDP, Local • K—Kernel • M—MPLS, MSDP • O—OSPF • P—PIM • R—RIP, RIPng • S—Static • T—Tunnel
Prf	Preference value of the route. In every routing metric except for the BGP LocalPref attribute, a lesser value is preferred. In order to use common comparison routines, Junos OS stores the 1's complement of the LocalPref value in the Preference2 field. For example, if the LocalPref value for Route 1 is 100, the Preference2 value is -101. If the LocalPref value for Route 2 is 155, the Preference2 value is -156. Route 2 is preferred because it has a higher LocalPref value and a lower Preference2 value.
Metric 1	First metric value in the route. For routes learned from BGP, this is the MED metric.
Metric 2	Second metric value in the route. For routes learned from BGP, this is the IGP metric.
Next hop	Next hop to the destination. An angle bracket (>) indicates that the route is the selected route.
AS path	AS path through which the route was learned. The letters at the end of the AS path indicate the path origin, providing an indication of the state of the route at the point at which the AS path originated: <ul style="list-style-type: none"> • I—IGP. • E—EGP. • ?—Incomplete; typically, the AS path was aggregated.


```

show route terse  user@host> show route terse
inet.0: 12 destinations, 12 routes (11 active, 0 holddown, 1 hidden)
+ = Active Route, - = Last Active, * = Both

A Destination      P Prf Metric 1  Metric 2  Next hop      AS path
* 0.0.0.0/0        S   5                >111.222.5.254
* 1.0.0.1/32       D   0                >at-5/3/0.0
* 1.0.0.2/32       L   0                Local
* 12.12.12.21/32   L   0                Reject
* 13.13.13.13/32   D   0                >t3-5/2/1.0
* 13.13.13.14/32   L   0                Local
* 13.13.13.21/32   L   0                Local
* 13.13.13.22/32   D   0                >t3-5/2/0.0
  127.0.0.1/32     D   0                >lo0.0
* 111.222.5.0/24   D   0                >fxp0.0
* 111.222.5.81/32  L   0                Local
* 224.0.0.5/32     O  10                1      MultiRecv

```


RIP Operational Mode Commands

Table 130 on page 557 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Routing Information Protocol (RIP). Commands are listed in alphabetical order.

Table 130: RIP Operational Mode Commands

Task	Command
Clear RIP general statistics.	clear rip general-statistics
Clear RIP statistics.	clear rip statistics
Display brief RIP statistics.	show rip general-statistics
Display information about RIP neighbors.	show rip neighbor
Display RIP statistics about messages sent and received on an interface, as well as information received through advertisements from other routers.	show rip statistics



NOTE: For more RIP-related commands, such as **show route protocol**, **show route instance**, and **show route table**, see Protocol-Independent Routing Operational Mode Commands.

For information about how to configure RIP, see the *Junos Routing Protocols Configuration Guide*.

clear rip general-statistics

Syntax	clear rip general-statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear rip general-statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Routing Information Protocol (RIP) general statistics.
Options	none—Clear RIP general statistics. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show rip general-statistics on page 560
List of Sample Output	clear rip general-statistics on page 558
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear rip general-statistics	user@host> clear rip general-statistics

clear rip statistics

Syntax	clear rip statistics <instance (all <i>instance-name</i>)> <logical-system (all <i>logical-system-name</i>)> <neighbor>
Syntax (EX Series Switch)	clear rip statistics <instance (all <i>instance-name</i>)> <neighbor>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Routing Information Protocol (RIP) statistics.
Options	<p>none—Reset RIP counters for all neighbors for all routing instances.</p> <p>instance (all <i>instance-name</i>)—(Optional) Clear RIP statistics for all instances or for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor—(Optional) Clear RIP statistics for the specified neighbor only.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show rip statistics on page 563
List of Sample Output	clear rip statistics on page 559
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear rip statistics	user@host> clear rip statistics

show rip general-statistics

Syntax	show rip general-statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show rip general-statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display brief Routing Information Protocol (RIP) statistics.
Options	none—Display brief RIP statistics. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear rip general-statistics on page 558
List of Sample Output	show rip general-statistics on page 560
Output Fields	Table 131 on page 560 lists the output fields for the show rip general-statistics command. Output fields are listed in the approximate order in which they appear.

Table 131: show rip general-statistics Output Fields

Field Name	Field Description
bad msgs	Number of invalid messages received.
no rcv intf	Number of packets received with no matching interface.
curr memory	Amount of memory currently used by RIP.
max memory	Most memory used by RIP.

```

show rip      user@host> show rip general-statistics
general-statistics  RIPv2 I/O info:
                        bad msgs      :      0
                        no rcv intf   :      0
                        curr memory   :      0
                        max memory    :      0

```

show rip neighbor

Syntax	show rip neighbor <instance (all <i>instance-name</i>)> <logical-system (all <i>logical-system-name</i>)> < <i>name</i> >
Syntax (EX Series Switch)	show rip neighbor <instance (all <i>instance-name</i>)> < <i>name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Routing Information Protocol (RIP) neighbors.
Options	<p>none—Display information about all RIP neighbors for all instances.</p> <p>instance (all <i>instance-name</i>)—(Optional) Display RIP neighbor information for all instances or for only the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>name</i>—(Optional) Display detailed information about only the specified RIP neighbor.</p>
Required Privilege Level	view
List of Sample Output	show rip neighbor on page 562
Output Fields	Table 132 on page 561 lists the output fields for the show rip neighbor command. Output fields are listed in the approximate order in which they appear.

Table 132: show rip neighbor Output Fields

Field Name	Field Description
Neighbor	Name of RIP neighbor.
State	State of the connection: Up or Dn (Down).
Source Address	Source address.
Destination Address	Destination address.
Send Mode	Send options: broadcast , multicast , none , or version 1 .
Receive Mode	Type of packets to accept: both , none , version 1 , or version 2 .
In Met	Metric added to incoming routes when advertising into RIP routes that were learned from other protocols.

show rip neighbor user@host> show rip neighbor

Neighbor	State	Source Address	Destination Address	Send Mode	Receive Mode	In Met
-----	-----	-----	-----	-----	-----	---
ge-2/3/0.0	Up	192.168.9.105	192.168.9.107	bcast	both	1
at-5/1/1.42	Dn	(null)	(null)	mcast	v2 only	3
at-5/1/0.42	Dn	(null)	(null)	mcast	both	3
at-5/1/0.0	Up	20.0.0.1	224.0.0.9	mcast	both	3
so-0/0/0.0	Up	192.168.9.97	224.0.0.9	mcast	both	3

show rip statistics

Syntax	show rip statistics <instance (all <i>instance-name</i>)> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show rip statistics <instance (all <i>instance-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Routing Information Protocol (RIP) statistics about messages sent and received on an interface, as well as information received from advertisements from other routing devices.
Options	<p>none—Display RIP statistics for all routing instances.</p> <p>instance (all <i>instance-name</i>)—(Optional) Display RIP statistics for all instances or for only the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear rip statistics on page 559
List of Sample Output	show rip statistics on page 564
Output Fields	Table 133 on page 563 lists the output fields for the show rip statistics command. Output fields are listed in the approximate order in which they appear.

Table 133: show rip statistics Output Fields

Field Name	Field Description
RIP info	<p>Information about RIP on the specified interface:</p> <ul style="list-style-type: none"> port—UDP port number used for RIP. holddown—Hold-down interval, in seconds. rts learned—Number of routes learned through RIP. rts held down—Number of routes held down by RIP. rqsts dropped—Number of received request packets that were dropped. resps dropped—Number of received response packets that were dropped. restart—Graceful restart status. Displayed when RIP is or has been in the process of graceful restart.

Table 133: show rip statistics Output Fields (*continued*)

Field Name	Field Description
<i>logical-interface</i>	<p>Name of the logical interface and its statistics:</p> <ul style="list-style-type: none"> routes learned—Number of routes learned on the logical interface. routes advertised—Number of routes advertised by the logical interface. timeout—Timeout interval, in seconds. update interval—Number of seconds since last update.
Counter	<p>List of counter types:</p> <ul style="list-style-type: none"> Updates Sent—Number of update messages sent. Triggered Updates Sent—Number of triggered update messages sent. Responses Sent—Number of response messages sent. Bad Messages—Number of invalid messages received. RIPv1 Updates Received—Number of RIPv1 update messages received. RIPv1 Bad Route Entries—Number of RIPv1 invalid route entry messages received. RIPv1 Updates Ignored—Number of RIPv1 update messages ignored. RIPv2 Updates Received—Number of RIPv2 update messages received. RIPv2 Bad Route Entries—Number of RIPv2 invalid route entry messages received. RIPv2 Updates Ignored—Number of RIPv2 update messages that were ignored. Authentication Failures—Number of received update messages that failed authentication. RIP Requests Received—Number of RIP request messages received. RIP Requests Ignored—Number of RIP request messages ignored.
Total	Total number of packets for the selected counter.
Last 5 min	Number of packets for the selected counter in the most recent 5-minute period.
Last minute	Number of packets for the selected counter in the most recent 1-minute period.

```

show rip statistics user@host> show rip statistics so-0/0/0.0
RIP info: port 520; update interval: 30s; holddown 180s; timeout 120s
restart in progress: restart time 60s; restart will complete in 55s
    rts learned  rts held down  rqsts dropped  resps dropped
              0             0             0             0
so-0/0/0.0: 0 routes learned; 501 routes advertised
Counter      Total      Last 5 min      Last minute
-----
Updates Sent          0          0          0
Triggered Updates Sent  0          0          0
Responses Sent        0          0          0
Bad Messages          0          0          0
RIPv1 Updates Received  0          0          0
RIPv1 Bad Route Entries  0          0          0
RIPv1 Updates Ignored   0          0          0
RIPv2 Updates Received  0          0          0
RIPv2 Bad Route Entries  0          0          0
RIPv2 Updates Ignored   0          0          0
Authentication Failures  0          0          0

```

RIP Requests Received	0	0	0
RIP Requests Ignored	0	0	0

RIPng Operational Mode Commands

Table 134 on page 567 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Routing Information Protocol next generation (RIPng). Commands are listed in alphabetical order.

Table 134: RIPng Operational Mode Commands

Task	Command
Clear general statistics.	clear ripng general-statistics
Clear statistics.	clear ripng statistics
Display general statistics.	show ripng general-statistics
Display RIPng neighbors.	show ripng neighbor
Display statistics.	show ripng statistics



NOTE: For more RIPng-related commands, such as `show route protocol`, `show route instance`, and `show route table`, see Protocol-Independent Routing Operational Mode Commands.

For information about how to configure RIPng, see the *Junos Routing Protocols Configuration Guide*.

clear ripng general-statistics

Syntax	clear ripng general-statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear ripng general-statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Routing Information Protocol next generation (RIPng) general statistics.
Options	none—Clear RIPng general statistics. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show ripng general-statistics on page 570
List of Sample Output	clear ripng general-statistics on page 568
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ripng general-statistics	user@host> clear ripng general-statistics

clear ripng statistics

Syntax	clear ripng statistics <instance name> <logical-system (all logical-system-name)>
Syntax (EX Series Switch)	clear ripng statistics <instance name>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Routing Information Protocol next-generation (RIPng) statistics.
Options	none—Reset RIPng counters for all neighbors for all routing instances. instance—(Optional) Reset RIPng counters for the specified instance. name—(Optional) Reset RIPng counters for the specified neighbor. logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show ripng statistics on page 573
List of Sample Output	clear ripng statistics on page 569
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ripng statistics	user@host> clear ripng statistics

show ripng general-statistics

Syntax	show ripng general-statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show ripng general-statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display general Routing Information Protocol next-generation (RIPng) statistics.
Options	none—Display general RIPng statistics. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ripng general-statistics on page 568
List of Sample Output	show ripng general-statistics on page 570
Output Fields	Table 135 on page 570 lists the output fields for the show ripng general-statistics command. Output fields are listed in the approximate order in which they appear.

Table 135: show ripng general-statistics Output Fields

Field Name	Field Description
bad msgs	Number of invalid messages received.
no rcv intf	Number of packets received with no matching interface.
curr memory	Amount of memory currently used by RIPng.
max memory	Most memory used by RIPng.

```

show ripng      user@host> show ripng general-statistics
general-statistics RIPng I/O info:
                    bad msgs      :          0
                    no rcv intf   :          0
                    curr memory   :          0
                    max memory    :          0

```


show ripng neighbor

Syntax	show ripng neighbor <logical-system (all <i>logical-system-name</i>)> < <i>name</i> >
Syntax (EX Series Switch)	show ripng neighbor < <i>name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about Routing Information Protocol next-generation (RIPng) neighbors.
Options	<p>none—Display information about all RIPng neighbors.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>name</i>—(Optional) Display detailed information about a specific RIPng neighbor.</p>
Required Privilege Level	view
List of Sample Output	show ripng neighbor on page 572
Output Fields	Table 136 on page 571 lists the output fields for the show ripng neighbor command. Output fields are listed in the approximate order in which they appear.

Table 136: show ripng neighbor Output Fields

Field Name	Field Description
Neighbor	Name of RIPng neighbor.
State	State of the connection: Up or Dn (Down).
Source Address	Source address.
Destination Address	Destination address.
Send Mode	Send options: broadcast , multicast , none , version 1 , or yes .
Receive Mode	Type of packets to accept: both , none , version 1 , or yes .
In Met	Metric added to incoming routes when advertising into RIPng routes that were learned from other protocols.

```
show ripng neighbor user@host> show ripng neighbor
```

Neighbor	State	Source Address	Dest Address	Send	Recv	In Met
-----	-----	-----	-----	----	----	----
fe-0/0/2.0	Up	fe80::290:69ff:fe68:b002	ff02::9	yes	yes	1

show ripng statistics

Syntax	show ripng statistics <logical-system (all <i>logical-system-name</i>)> < <i>name</i> >
Syntax (EX Series Switch)	show ripng statistics < <i>name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display Routing Information Protocol next generation (RIPng) statistics about messages sent and received on an interface, as well as information received from advertisements from other routing devices.
Options	<p>none—Display RIPng statistics for all neighbors.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>name</i>—(Optional) Display detailed information about a specific RIPng neighbor.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ripng statistics on page 569
List of Sample Output	show ripng statistics on page 574
Output Fields	Table 137 on page 573 lists the output fields for the show ripng statistics command. Output fields are listed in the approximate order in which they appear.

Table 137: show ripng statistics Output Fields

Field Name	Field Description
RIPng info	<p>Information about RIPng on the specified interface:</p> <ul style="list-style-type: none"> port—UDP port number used for RIP. holddown—Hold-down interval, in seconds. rts learned—Number of routes learned through RIP. rts held down—Number of routes held down by RIP. rqsts dropped—Number of received request packets that were dropped. resps dropped—Number of received response packets that were dropped. restart—Graceful restart status. Displayed when RIPng is or has been in the process of graceful restart.

Table 137: show ripng statistics Output Fields (*continued*)

Field Name	Field Description
<i>logical-interface</i>	Name of the logical interface and its statistics: <ul style="list-style-type: none"> • routes learned—Number of routes learned on the logical interface. • routes advertised—Number of routes advertised by the logical interface. • timeout—Timeout interval, in seconds. • update interval—Number of seconds since last update.
Counter	List of counter types: <ul style="list-style-type: none"> • Updates Sent—Number of update messages sent. • Triggered Updates Sent—Number of triggered update messages sent. • Responses Sent—Number of response messages sent. • Bad Messages—Number of invalid messages received. • Updates Received—Number of RIPng update messages received. • Bad Route Entries—Number of RIPng invalid route entry messages received. • Updates Ignored—Number of RIPng update messages ignored. • RIPng Requests Received—Number of RIPng request messages received. • RIPng Requests Ignored—Number of RIPng request messages ignored.
Total	Total number of packets for the selected counter.
Last 5 min	Number of packets for the selected counter in the most recent 5-minute period.
Last minute	Number of packets for the selected counter in the most recent 1-minute period.

```

show ripng statistics  user@host> show ripng statistics
                        RIPng info: port 521; holddown 120s;
                        rts learned  rts held down  rqsts dropped  resps dropped
                          0             0             0             0

so-0/1/3.0: 0 routes learned; 1 routes advertised; timeout 180s; update interval
20s
Counter                Total    Last 5 min  Last minute
-----
Updates Sent            934         16          4
Triggered Updates Sent    1           0           0
Responses Sent           0           0           0
Bad Messages             0           0           0
Updates Received          0           0           0
Bad Route Entries         0           0           0
Updates Ignored           0           0           0
RIPng Requests Received   0           0           0
RIPng Requests Ignored    0           0           0

```

PART 2

Policy Framework

- Firewall Filter Operational Mode Commands on page 577
- Forwarding Operational Mode Commands on page 589
- Routing Policy Operational Mode Commands on page 607

Firewall Filter Operational Mode Commands

Table 138 on page 577 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot firewall filters. Commands are listed in alphabetical order.

Table 138: Firewall Filter Operational Mode Commands


Task	Command
Clear firewall filter counters.	clear firewall
Operational statistics for firewall filters.	show firewall
Version number of installed firewall filters.	show firewall filter version
Firewall filter log information.	show firewall log
Prefix-action statistics for firewall filters.	show firewall prefix-action-stats
Counters for policers.	show policer



NOTE: For information about how to configure firewall filters, see the *Junos Policy Framework Configuration Guide*.

For information about the related operational mode commands, **show interfaces filters** and **show interfaces policers**, see the *Junos Interfaces Command Reference*.

clear firewall

Syntax	clear firewall (all counter <i>counter-name</i> filter <i>filter-name</i> logical-system <i>logical-system-name</i>)
Syntax (EX Series Switch)	clear firewall (all counter <i>counter-name</i> filter <i>filter-name</i>)
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. logical-system option introduced in Junos OS Release 9.3.
Description	Clear statistics about configured firewall filters.
<div>  <p>NOTE: The clear firewall command cannot be used to clear the Routing Engine filter counters on a backup Routing Engine that is enabled for GRES.</p> </div>	
Options	<p>all—Clear the packet and byte counts for all filters.</p> <p>counter <i>counter-name</i>—Clear the packet and byte counts for a filter counter that has been configured with the counter firewall filter action.</p> <p>filter <i>filter-name</i>—Clear the packet and byte counts for the specified firewall filter.</p> <p>logical-system <i>logical-system-name</i>—Clear the packet and byte counts for the specified logical system.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show firewall on page 579
List of Sample Output	clear firewall all on page 578
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear firewall all	user@host> clear firewall all

show firewall

Syntax	<pre>show firewall <filter <i>filter-name</i>> <counter <i>counter-name</i>> <log> <logical-system (all <i>logical-system-name</i>)> <terse></pre>
Syntax (EX Series Switch)	<pre>show firewall <filter <i>filter-name</i>> <counter <i>counter-name</i>></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p> <p>logical-system option introduced in Junos OS Release 9.3.</p> <p>terse option introduced in Junos OS Release 9.4.</p>
Description	Display statistics about configured firewall filters.
Options	<p>none—(Optional) Display statistics about configured firewall filters.</p> <p>filter <i>filter-name</i>—(Optional) Name of a configured filter.</p> <p>counter <i>counter-name</i>—(Optional) Name of a filter counter.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular system.</p> <p>log—(Optional) Display log entries for firewall filters.</p> <p>terse—(Optional) Display firewall filter names only.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • clear firewall on page 578
List of Sample Output	<p>show firewall filter on page 581</p> <p>show firewall filter (Dynamic Input Filter) on page 581</p> <p>show firewall (Logical Systems) on page 581</p>
Output Fields	Table 139 on page 580 lists the output fields for the show firewall command. Output fields are listed in the approximate order in which they appear.

Table 139: show firewall Output Fields

Field Name	Field Description
Filter	<p>Name of a filter that has been configured with the filter statement at the [edit firewall] hierarchy level.</p> <p>When an interface-specific filter is displayed, the name of the filter is followed by the full interface name and by either -i for an input filter or -o for an output filter.</p> <p>When dynamic filters are displayed, the name of the filter is followed by the full interface name and by either -in for an input filter or -out for an output filter. When a logical system-specific filter is displayed, the name of the filter is prefixed with two underscore (__) characters and the name of the logical system (for example, __ls1/filter1).</p>
Counters	<p>Display filter counter information:</p> <ul style="list-style-type: none">• Name—Name of a filter counter that has been configured with the counter firewall filter action.• Bytes—Number of bytes that match the filter term under which the counter action is specified.• Packets—Number of packets that matched the filter term under which the counter action is specified.
Policers	<p>Display policer information:</p> <ul style="list-style-type: none">• Name—Name of policer.• Packets—Number of packets that matched the filter term under which the policer action is specified. This is only the number of out-of-specification (out-of-spec) packet counts, not all packets policed by the policer.

```

show firewall filter      user@host> show firewall filter test
                             Filter: test
                             Counters:
                             Name              Bytes      Packets
                             Counter-1         0           0
                             Counter-2         0           0
                             Policers:
                             Name              Packets
                             Policer-1         0

show firewall filter      user@host> show firewall filter dfwd-ge-5/0/0.1-in
(Dynamic Input Filter)   Filter: dfwd-ge-5/0/0.1-in
                             Counters:
                             Name              Bytes      Packets
                             c1-ge-5/0/0.1-in  0           0

show firewall (Logical    user@host>show firewall
Systems)
                             Filter: __lr1/test
                             Counters:
                             Name              Bytes      Packets
                             icmp              420         5
                             Filter: __default_bpdu_filter__
                             Filter: __lr1/inet_filter1
                             Counters:
                             Name              Bytes      Packets
                             inet_tcp_count    0           0
                             inet_udp_count    0           0
                             Filter: __lr1/inet_filter2
                             Counters:
                             Name              Bytes      Packets
                             inet_icmp_count   0           0
                             inet_pim_count    0           0
                             Filter: __lr2/inet_filter1
                             Counters:
                             Name              Bytes      Packets
                             inet_tcp_count    0           0
                             inet_udp_count    0           0

```

show firewall filter version

Syntax	show firewall filter version < <i>filter-name</i> >
Release Information	Command introduced in Junos OS Release 10.2R2.
Description	Display the version number of the installed firewall filter in the Routing Engine.
Options	<p>none—(Optional) Display the version number of all installed firewall filters.</p> <p><i>filter-name</i>—(Optional) Name of a configured filter. If you specify the name of a filter, only the version number of that filter is displayed.</p>
Additional Information	The initial version number is 1. This number increments by one when you modify the firewall filter settings or an associated prefix action. The maximum version number is 4,294,967,295. When the version number reaches 4,294,967,295, this number is reset to 1.
Required Privilege Level	view
List of Sample Output	show firewall filter version on page 582
Output Fields	Table 140 on page 582 lists the output fields for the show firewall filter version command. Output fields are listed in the approximate order in which they appear.

Table 140: show firewall filter version Output Fields

Field Name	Field Description
Filter	Name of a filter that has been configured with the filter statement at the [edit firewall] hierarchy level.
Version	Display the version number of the firewall filter.

```

show firewall filter version user@host> show firewall filter version
Filter version information :
Filter                               Version
test                               10

```

show firewall log

Syntax	show firewall log <detail> <interface <i>interface-name</i> > <logical-system (<i>logical-system-name</i> all)>
Syntax (EX Series Switch)	show firewall log <detail> <interface <i>interface-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches. logical-system option introduced in Junos OS Release 9.3.
Description	Display log information about firewall filters.
Options	none—Display log information about firewall filters. detail—(Optional) Display detailed information. interface <i>interface-name</i> —(Optional) Display log information about a specific interface. logical-system (<i>logical-system-name</i> all)—(Optional) Perform this operation on all logical systems or on a particular system.
Required Privilege Level	view
List of Sample Output	show firewall log on page 584 show firewall log detail on page 584
Output Fields	Table 141 on page 583 lists the output fields for the show firewall log command. Output fields are listed in the approximate order in which they appear.

Table 141: show firewall log Output Fields

Field Name	Field Description
Time of Log	Time that the event occurred.
Filter	<p>Name of a filter that has been configured with the filter statement at the [edit firewall] hierarchy level.</p> <ul style="list-style-type: none"> A hyphen (-) indicates that the packet was handled by the Packet Forwarding Engine. A space (no hyphen) indicates the packet was handled by the Routing Engine. The notation pfe indicates packets logged by the Packet Forwarding Engine hardware filters.

Table 141: show firewall log Output Fields (*continued*)

Field Name	Field Description
Filter Action	Filter action: <ul style="list-style-type: none"> • A—Accept • D—Discard • R—Reject
Name of Interface	Ingress interface for the packet.
Name of protocol	Packet's protocol name: egp, gre, icmp, ipip, ospf, pim, rsdp, tcp, or udp .
Packet length	Length of the packet.
Source address	Packet's source address.
Destination address	Packet's destination address and port.

show firewall log

```

user@host>show firewall log
Time      Filter  Action Interface    Protocol  Src Addr   Dest Addr
13:10:12  pfe      D      rlsq0.902     ICMP     180.1.177.2 180.1.177.1
13:10:11  pfe      D      rlsq0.902     ICMP     180.1.177.2 180.1.177.1

```

show firewall log detail

```

user@host> show firewall log detail
Time of Log: 2004-10-13 10:37:17 PDT, Filter: f, Filter action: accept, Name of
interface: fxp0.0Name of protocol: TCP, Packet Length: 50824, Source address:
172.17.22.108:829,
Destination address: 192.168.70.66:513
Time of Log: 2004-10-13 10:37:17 PDT, Filter: f, Filter action: accept, Name of
interface: fxp0.0
Name of protocol: TCP, Packet Length: 1020, Source address: 172.17.22.108:829,
Destination address: 192.168.70.66:513
Time of Log: 2004-10-13 10:37:17 PDT, Filter: f, Filter action: accept, Name of
interface: fxp0.0
Name of protocol: TCP, Packet Length: 49245, Source address: 172.17.22.108:829,
Destination address: 192.168.70.66:513
Time of Log: 2004-10-13 10:37:17 PDT, Filter: f, Filter action: accept, Name of
interface: fxp0.0
Name of protocol: TCP, Packet Length: 49245, Source address: 172.17.22.108:829,
Destination address: 192.168.70.66:513
Time of Log: 2004-10-13 10:37:17 PDT, Filter: f, Filter action: accept, Name of
interface: fxp0.0
Name of protocol: TCP, Packet Length: 49245, Source address: 172.17.22.108:829,
Destination address: 192.168.70.66:513
.....

```

show firewall prefix-action-stats

Syntax	show firewall prefix-action-stats filter <i>filter-name</i> prefix-action <i>prefix-action-name</i> <from <i>number</i> to <i>number</i> > <logical-system (<i>logical-system-name</i> all)>
Release Information	Command introduced before Junos OS Release 7.4. logical-system option introduced in Junos OS Release 9.3.
Description	Display prefix action statistics about configured firewall filters.
Options	filter <i>filter-name</i> —Name of a filter. prefix-action <i>prefix-action-name</i> —Name of a prefix action. from <i>number</i> to <i>number</i> —(Optional) Starting and ending counter or policer. logical-system (<i>logical-system-name</i> all)—(Optional) Perform this operation on all logical systems or on a particular system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear firewall on page 578
List of Sample Output	show firewall prefix-action-stats on page 585
Output Fields	Table 142 on page 585 lists the output fields for the show firewall prefix-action-stats command. Output fields are listed in the approximate order in which they appear.

Table 142: show firewall prefix-action-stats Output Fields

Field Name	Field Description
Filter	Filter name. Filters configured for logical systems include the name of the filter prefixed with the two underscore characters (__) and the name of the logical system (for example, __ls1/filter1).

show firewall prefix-action-stats user@host> show firewall prefix-action-stats filter test prefix-action act1
Filter: __ls2/test

show policer

Syntax	show policer < <i>policer-name</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display the number of policed packets for a given policer or an aggregate policer. An aggregate policer is an aggregate of different policers on the same logical interface.
Options	none—Display the number of policed packets for all configured policers. <i>policer-name</i> —(Optional) Display the number of policed packets for the specified policer.
Required Privilege Level	view
List of Sample Output	show policer on page 586 show policer (Aggregate Policers) on page 586
Output Fields	Table 143 on page 586 lists the output fields for the show policer command. Output fields are listed in the approximate order in which they appear.

Table 143: show policer Output Fields

Field Name	Field Description
Name	Name of the policer.
Packets	Total number of packets policed by the specified policer.

```

show policer user@host> show policer
Policers:
  Name                                     Packets
  ____default_arp_policer____              0
  fe-1/2/0.0-out-policer                 3496661237
  fe-1/2/1.0-out-policer                 3432710964

```

```

show policer user@host> show policer
(Aggregate Policers) Policers:
  Name                                     Packets
  ____default_arp_policer____              0
  P1-ae0.0-log_int-o                      0
  P2-ge-7/0/2.0-inet-o                    0
  P2-ge-7/0/2.0-inet6-o                    0
  __policer_tmpl__-term                    0
  __policer_tmpl__-fc0                     0
  __policer_tmpl__-fc0                     0
  __policer_tmpl__-fc1                     0
  __policer_tmpl__-fc0                     0
  __policer_tmpl__-fc1                     0
  __policer_tmpl__-fc2                     0
  __policer_tmpl__-fc0                     0
  __policer_tmpl__-fc1                     0

```


__policer_tmpl__-fc2	0
__policer_tmpl__-fc3	0

Forwarding Operational Mode Commands

Table 144 on page 589 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot forwarding options. Commands are listed in alphabetical order.

Table 144: Forwarding Operational Mode Commands

Task	Command
Clear the binding state of a Dynamic Host Configuration Protocol (DHCP) client from the client table.	clear dhcp relay binding
Clear all DHCP relay statistics.	clear dhcp relay statistics
Clear statistic counters in the User Datagram Protocol (UDP) forwarding process.	clear helper statistics
Display the address bindings in the DHCP client table.	show dhcp relay binding
Display DHCP relay statistics.	show dhcp relay statistics
Display statistics collected by the UDP forwarding process.	show helper statistics

clear dhcp relay binding

Syntax	<pre>clear dhcp relay binding <(all ip-address mac-address)> <interface interface-name> <logical-system logical-system-name> <routing-instance routing-instance-name></pre>
Release Information	<p>Command introduced in Junos OS Release 8.3.</p> <p>all and interface options added in Junos OS Release 8.4.</p>
Description	Clear the binding state of a Dynamic Host Configuration Protocol (DHCP) client from the client table.
Options	<p>all—(Optional) Clear the binding state for all DHCP clients.</p> <p>interface <i>interface-name</i>—(Optional) Clear the binding state for DHCP clients on the specified interface.</p> <p>ip-address—(Optional) IP address of the DHCP client.</p> <p>mac-address—(Optional) MAC address of the DHCP client.</p> <p>logical-system <i>logical-system-name</i>—(Optional) Clear the binding state for DHCP clients on the specified logical system.</p> <p>routing-instance <i>routing-instance-name</i>—(Optional) Clear the binding state for DHCP clients on the specified routing instance.</p>
Required Privilege Level	view
List of Sample Output	<p>clear dhcp relay binding on page 591</p> <p>clear dhcp relay binding all on page 592</p> <p>clear dhcp relay binding interface on page 592</p>
Output Fields	Table 145 on page 590 lists the output fields for the clear dhcp relay binding command.

Table 145: clear dhcp relay binding Output Fields

Field Name	Field Description	Level of Output
<i>number</i> clients, (<i>number</i> bound, <i>number</i> selecting, <i>number</i> renewing, <i>number</i> rebinding)	Summary counts of the total number of DHCP clients and the number of DHCP clients in each state	detail none
IP address	IP address of the DHCP client.	All levels
Hardware address	Hardware address of the DHCP client.	All levels

Table 145: clear dhcp relay binding Output Fields (*continued*)

Field Name	Field Description	Level of Output
Type	Type of DHCP packet processing performed on the router: <ul style="list-style-type: none"> active—Router actively processes and relays DHCP packets. passive—Router passively snoops DHCP packets passing through the router. 	All levels
Lease expires at	Date and time at which the client's IP address lease expires.	All levels
State	State of the DHCP relay address binding table on the DHCP client: <ul style="list-style-type: none"> init—Initial state. reboot—Client sends DHCP DISCOVER request. select—Client receives offers from DHCP servers. request—Client requests a DHCP server. add—Client is in process of being added. delete—Client is in process of being deleted. bound—Client has active IP address lease. renew—Client sends request to renew IP address lease. rebind—Client broadcasts request to renew IP address lease. 	detail
Active binding information	Information about active IP address binding: <ul style="list-style-type: none"> IP address—IP address of the DHCP client. Hardware address—Hardware address of the DHCP client. Request received on—(detail level only) Interface on which the client request was received. relayed by—(detail level only) IP address on which the client request was relayed. 	All levels (unless specified otherwise) when command includes ip-address or mac-address value
Lease information	Information about the client's IP address lease: <ul style="list-style-type: none"> Type—Type of IP address lease; always DHCP. Obtained at—Date and time at which the client's IP address lease was obtained. Expires at—Date and time at which the client's IP address lease expires. State—(detail level only) State of the DHCP relay address binding table on the DHCP client. 	All levels (unless specified otherwise) when command includes ip-address or mac-address value

clear dhcp relay binding The following sample output displays the address bindings in the DHCP client table before and after the **clear dhcp relay binding** command is issued.

```

user@host> show dhcp relay binding
IP address      Hardware address  Type    Lease expires at
100.20.32.1     90:00:00:01:00:01 active          2007-02-08 16:41:17 EST

user@host> clear dhcp relay binding 100.20.32.1

user@host> show dhcp relay binding

```

clear dhcp relay binding all user@host> clear dhcp relay binding all

clear dhcp relay binding interface user@host> clear dhcp relay binding interface fe-0/0/2

clear dhcp relay statistics

Syntax	clear dhcp relay statistics <code><logical-system <i>logical-system-name</i>></code> <code><routing-instance <i>routing-instance-name</i>></code>
Release Information	Command introduced in Junos OS Release 8.3.
Description	Clear all Dynamic Host Configuration Protocol (DHCP) relay statistics.
Options	<p><code>logical-system <i>logical-system-name</i></code>—(Optional) Perform this operation on the specified logical system. If you do not specify a logical system name, statistics are cleared for the default logical system.</p> <p><code>routing-instance <i>routing-instance-name</i></code>—(Optional) Perform this operation on the specified routing instance. If you do not specify a routing instance name, statistics are cleared for the default routing instance.</p>
Required Privilege Level	view
List of Sample Output	clear dhcp relay statistics on page 594
Output Fields	Table 146 on page 593 lists the output fields for the clear dhcp relay statistics command.

Table 146: clear dhcp relay statistics Output Fields

Field Name	Field Description
Packets dropped	<p>Number of packets discarded by the extended DHCP relay agent application due to errors. Only nonzero statistics appear in the Packets dropped output. When all of the Packets dropped statistics are 0 (zero), only the Total field appears.</p> <ul style="list-style-type: none"> Total—Total number of packets discarded by the extended DHCP relay agent application. Bad hardware address—Number of packets discarded because an invalid hardware address was specified. Bad opcode—Number of packets discarded because an invalid operation code was specified. Bad options—Number of packets discarded because invalid options were specified. Invalid server address—Number of packets discarded because an invalid server address was specified. No available addresses—Number of packets discarded because there were no addresses available for assignment. No interface match—Number of packets discarded because they did not belong to a configured interface. No routing instance match—Number of packets discarded because they did not belong to a configured routing instance. No valid local address—Number of packets discarded because there was no valid local address. Packet too short—Number of packets discarded because they were too short. Read error—Number of packets discarded because of a system read error. Send error—Number of packets that the extended DHCP relay application could not send. Option 60—Number of packets discarded containing DHCP option 60 vendor-specific information. Option 82—Number of packets discarded because DHCP option 82 information could not be added.

Table 146: clear dhcp relay statistics Output Fields (*continued*)

Field Name	Field Description
Messages received	<p>Number of DHCP messages received.</p> <ul style="list-style-type: none"> BOOTREQUEST—Number of BOOTP protocol data units (PDUs) received DHCPDECLINE—Number of DHCP PDUs of type DECLINE received DHCPDISCOVER—Number of DHCP PDUs of type DISCOVER received DHCPINFORM—Number of DHCP PDUs of type INFORM received DHCPRELEASE—Number of DHCP PDUs of type RELEASE received DHCPREQUEST—Number of DHCP PDUs of type REQUEST received
Messages sent	<p>Number of DHCP messages sent.</p> <ul style="list-style-type: none"> BOOTREPLY—Number of BOOTP PDUs transmitted DHCPOFFER—Number of DHCP OFFER PDUs transmitted DHCPACK—Number of DHCP ACK PDUs transmitted DHCPNACK—Number of DHCP NACK PDUs transmitted

clear dhcp relay statistics The following sample output displays the DHCP relay statistics before and after the **clear dhcp relay statistics** command is issued.

```

user@host> show dhcp relay statistics
Packets dropped:
  Total                0

Messages received:
  BOOTREQUEST          116
  DHCPDECLINE           0
  DHCPDISCOVER         11
  DHCPINFORM            0
  DHCPRELEASE           0
  DHCPREQUEST         105

Messages sent:
  BOOTREPLY             44
  DHCPOFFER             11
  DHCPACK               11
  DHCPNAK               11

user@host> clear dhcp relay statistics

user@host> show dhcp relay statistics
Packets dropped:
  Total                0

Messages received:
  BOOTREQUEST           0
  DHCPDECLINE           0
  DHCPDISCOVER           0
  DHCPINFORM             0
  DHCPRELEASE           0
  DHCPREQUEST           0

```


Messages sent:	
BOOTREPLY	0
DHCPOFFER	0
DHCPACK	0
DHCPNAK	0

clear helper statistics

Syntax	clear helper statistics
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear statistic counters in the User Datagram Protocol (UDP) forwarding process.
Options	This command has no options.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• show helper statistics on page 605
List of Sample Output	clear helper statistics on page 596
Output Fields	See show helper statistics for an explanation of output fields.

clear helper statistics The following sample output displays statistics counters before and after the **clear helper statistics** command is issued:

```
user@host> show helper statistics
domain:
  Received packets: 63
  Forwarded packets: 61
  Dropped packets: 2
    Due to no interface in fud database: 0
    Due to an error during packet read: 1
    Due to an error during packet send: 1
tftp:
  Received packets: 5
  Forwarded packets: 5
  Dropped packets: 0
    Due to no interface in fud database: 0
    Due to an error during packet read: 0
    Due to an error during packet send: 0
```

```
user@host> clear helper statistics
```

```
user@host> show helper statistics
domain:
  Received packets: 0
  Forwarded packets: 0
  Dropped packets: 0
    Due to no interface in fud database: 0
    Due to an error during packet read: 0
    Due to an error during packet send: 0
tftp:
  Received packets: 0
  Forwarded packets: 0
  Dropped packets: 0
    Due to no interface in fud database: 0
```

Due to an error during packet read: 0
Due to an error during packet send: 0

show dhcp relay binding

Syntax	<code>show dhcp relay binding</code> <code><brief></code> <code><detail></code> <code><interface <i>interface-name</i>></code> <code><<i>ip-address</i> <i>mac-address</i>></code> <code><logical-system <i>logical-system-name</i>></code> <code><routing-instance <i>routing-instance-name</i>></code> <code><summary></code>
Release Information	Command introduced in Junos OS Release 8.3. <code>interface</code> and <code>mac-address</code> options added in Junos OS Release 8.4.
Description	Display the address bindings in the Dynamic Host Configuration Protocol (DHCP) client table.
Options	<code>brief</code> —(Optional) Display brief information about the active client bindings. This is the default, and produces the same output as <code>show dhcp relay binding</code> . <code>detail</code> —(Optional) Display detailed client binding information. <code>interface <i>interface-name</i></code> —(Optional) Perform this operation on the specified interface. You can optionally filter on VLAN ID and SVLAN ID. <code><i>ip-address</i></code> —(Optional) IP address of the DHCP client. <code><i>mac-address</i></code> —(Optional) MAC address of the DHCP client. <code>logical-system <i>logical-system-name</i></code> —(Optional) Perform this operation on the specified logical system. <code>routing-instance <i>routing-instance-name</i></code> —(Optional) Perform this operation on the specified routing instance. <code>summary</code> —(Optional) Display a summary of DHCP client information.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• clear dhcp relay binding on page 590
List of Sample Output	show dhcp relay binding on page 600 show dhcp relay binding detail on page 600 show dhcp relay binding interface on page 600 show dhcp relay binding interface vlan-id on page 601 show dhcp relay binding interface svlan-id on page 601 show dhcp relay binding ip-address on page 601 show dhcp relay binding mac-address on page 601 show dhcp relay binding session-id on page 601 show dhcp relay binding summary on page 601

Output Fields Table 147 on page 599 lists the output fields for the **show dhcp relay binding** command. Output fields are listed in the approximate order in which they appear.

Table 147: show dhcp relay binding Output Fields

Field Name	Field Description	Level of Output
<i>number clients,</i> (<i>number init,</i> <i>number bound,</i> <i>number selecting,</i> <i>number requesting,</i> <i>number renewing,</i> <i>number rebinding,</i> <i>number releasing</i>)	Summary counts of the total number of DHCP clients and the number of DHCP clients in each state.	summary
IP address	IP address of the DHCP client.	brief detail
Session Id	Session ID of the subscriber session.	brief detail
Hardware address	Hardware address of the DHCP client.	brief detail
Expires	Number of seconds in which the lease expires.	brief detail
State	State of the DHCP relay address binding table on the DHCP client: <ul style="list-style-type: none"> • BOUND—Client has an active IP address lease. • INIT—Initial state. • REBINDING—Client is broadcasting a request to renew the IP address lease. • RELEASE—Client is releasing the IP address lease. • RENEWING—Client is sending a request to renew the IP address lease. • REQUESTING—Client is requesting a DHCP server. • SELECTING—Client is receiving offers from DHCP servers. 	brief detail
Interface	Incoming client interface.	brief
Lease Expires	Date and time at which the client's IP address lease expires.	detail
Lease Expires in	Number of seconds in which the lease expires.	detail
Lease Start	Date and time at which the client's IP address lease started.	detail
Incoming Client Interface	Client's incoming interface.	detail
Server IP Address	IP address of the DHCP server.	detail

Table 147: show dhcp relay binding Output Fields (*continued*)

Field Name	Field Description	Level of Output
Server Interface	Interface of the DHCP server.	detail
Bootp Relay Address	IP address of BOOTP relay.	detail
Type	Type of DHCP packet processing performed on the router: <ul style="list-style-type: none"> active—Router actively processes and relays DHCP packets. passive—Router passively snoops DHCP packets passing through the router. 	All levels
Lease expires at	Date and time at which the client's IP address lease expires.	All levels

show dhcp relay binding

user@host> show dhcp relay binding

IP address	Session Id	Hardware address	Expires	State	Interface
100.20.32.11	41	00:10:94:00:00:01	86371	BOUND	ge-1/0/0.0
100.20.32.12	42	00:10:94:00:00:02	86371	BOUND	ge-1/0/0.0
100.20.32.13	43	00:10:94:00:00:03	86371	BOUND	ge-1/0/0.0
100.20.32.14	44	00:10:94:00:00:04	86371	BOUND	ge-1/0/0.0
100.20.32.15	45	00:10:94:00:00:05	86371	BOUND	ge-1/0/0.0

show dhcp relay binding detail

user@host> show dhcp relay binding detail

```
Client IP Address: 100.20.32.11
  Hardware Address: 00:10:94:00:00:01
  State: BOUND(bound)
  Lease Expires: 2009-07-21 11:00:06 PDT
  Lease Expires in: 86361 seconds
  Lease Start: 2009-07-20 11:00:06 PDT
  Incoming Client Interface: ge-1/0/0.0
  Server Ip Address: 100.20.22.2
  Server Interface: none
  Bootp Relay Address: 100.20.32.2
  Session Id: 41
Client IP Address: 100.20.32.12
  Hardware Address: 00:10:94:00:00:02
  State: BOUND(bound)
  Lease Expires: 2009-07-21 11:00:06 PDT
  Lease Expires in: 86361 seconds
  Lease Start: 2009-07-20 11:00:06 PDT
  Incoming Client Interface: ge-1/0/0.0
  Server Ip Address: 100.20.22.2
  Server Interface: none
  Bootp Relay Address: 100.20.32.2
  Session Id: 42
```

show dhcp relay binding interface

user@host> show dhcp relay binding interface fe-0/0/2

	IP address	Hardware address	Type	Lease expires at		
	100.20.32.1	90:00:00:01:00:01	active	2007-03-27 15:06:20 EDT		

show dhcp relay binding interface	user@host> show dhcp relay binding interface ge-1/1/0:100					
vlan-id	IP address	Session Id	Hardware address	Expires	State	Interface
	200.20.20.15	6	00:10:94:00:00:01	86124	BOUND	
	ge-1/1/0:100					

show dhcp relay binding interface	user@host> show dhcp relay binding interface ge-1/1/0:10-100					
svlan-id	IP address	Session Id	Hardware address	Expires	State	Interface
	200.20.20.16	7	00:10:94:00:00:02	86124	BOUND	
	ge-1/1/0:10-100					

show dhcp relay binding ip-address	user@host> show dhcp relay binding 100.20.32.13					
	IP address	Session Id	Hardware address	Expires	State	Interface
	100.20.32.13	43	00:10:94:00:00:03	86293	BOUND	ge-1/0/0.0

show dhcp relay binding mac-address	user@host> show dhcp relay binding 00:10:94:00:00:05					
	IP address	Session Id	Hardware address	Expires	State	Interface
	100.20.32.15	45	00:10:94:00:00:05	86279	BOUND	ge-1/0/0.0

show dhcp relay binding session-id	user@host> show dhcp relay binding 41					
	IP address	Session Id	Hardware address	Expires	State	Interface
	100.20.32.11	41	00:10:94:00:00:01	86305	BOUND	ge-1/0/0.0

show dhcp relay binding summary	user@host> show dhcp relay binding summary
	3 clients, (2 init, 1 bound, 0 selecting, 0 requesting, 0 renewing, 0 rebinding, 0 releasing)

show dhcp relay statistics

Syntax	show dhcp relay statistics <logical-system <i>logical-system-name</i>> <routing-instance <i>routing-instance-name</i>>
Release Information	Command introduced in Junos OS Release 8.3.
Description	Display Dynamic Host Configuration Protocol (DHCP) relay statistics.
Options	<p>logical-system <i>logical-system-name</i>—(Optional) Perform this operation on the specified logical system. If you do not specify a logical system name, statistics are displayed for the default logical system.</p> <p>routing-instance <i>routing-instance-name</i>—(Optional) Perform this operation on the specified routing instance. If you do not specify a routing instance name, statistics are displayed for the default routing instance.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none">• clear dhcp relay statistics on page 593
List of Sample Output	show dhcp relay statistics on page 603
Output Fields	Table 148 on page 603 lists the output fields for the show dhcp relay statistics command. Output fields are listed in the approximate order in which they appear.

Table 148: show dhcp relay statistics Output Fields

Field Name	Field Description
Packets dropped	<p>Number of packets discarded by the extended DHCP relay agent application due to errors. Only nonzero statistics appear in the Packets dropped output. When all of the Packets dropped statistics are 0 (zero), only the Total field appears.</p> <ul style="list-style-type: none"> • Total—Total number of packets discarded by the extended DHCP relay agent application. • Bad hardware address—Number of packets discarded because an invalid hardware address was specified. • Bad opcode—Number of packets discarded because an invalid operation code was specified. • Bad options—Number of packets discarded because invalid options were specified. • Invalid server address—Number of packets discarded because an invalid server address was specified. • No available addresses—Number of packets discarded because there were no addresses available for assignment. • No interface match—Number of packets discarded because they did not belong to a configured interface. • No routing instance match—Number of packets discarded because they did not belong to a configured routing instance. • No valid local address—Number of packets discarded because there was no valid local address. • Packet too short—Number of packets discarded because they were too short. • Read error—Number of packets discarded because of a system read error. • Send error—Number of packets that the extended DHCP relay application could not send. • Option 60—Number of packets discarded containing DHCP option 60 vendor-specific information. • Option 82—Number of packets discarded because DHCP option 82 information could not be added.
Messages received	<p>Number of DHCP messages received.</p> <ul style="list-style-type: none"> • BOOTREQUEST—Number of BOOTP protocol data units (PDUs) received • DHCPDECLINE—Number of DHCP PDUs of type DECLINE received • DHCPDISCOVER—Number of DHCP PDUs of type DISCOVER received • DHCPINFORM—Number of DHCP PDUs of type INFORM received • DHCPRELEASE—Number of DHCP PDUs of type RELEASE received • DHCPREQUEST—Number of DHCP PDUs of type REQUEST received
Messages sent	<p>Number of DHCP messages sent.</p> <ul style="list-style-type: none"> • BOOTREPLY—Number of BOOTP PDUs transmitted • DHCPOFFER—Number of DHCP OFFER PDUs transmitted • DHCPACK—Number of DHCP ACK PDUs transmitted • DHCPNACK—Number of DHCP NACK PDUs transmitted

```

show dhcp relay statistics user@host> show dhcp relay statistics
Packets dropped:
    Total                  30
    Bad hardware address   1
    Bad opcode             1
    Bad options            3
    Invalid server address 5
    No available addresses 1
    No interface match     2
    No routing instance match 9

```

No valid local address	4
Packet too short	2
Read error	1
Send error	1
Option 60	1
Option 82	2
Messages received:	
BOOTREQUEST	116
DHCPDECLINE	0
DHCPDISCOVER	11
DHCPINFORM	0
DHCPRELEASE	0
DHCPREQUEST	105
Messages sent:	
BOOTREPLY	44
DHCPOFFER	11
DHCPACK	11
DHCPNAK	11

show helper statistics

Syntax	show helper statistics
Release Information	Command introduced before Junos OS Release 7.4.
Description	Show statistics collected by the UDP forwarding process.
Options	This command has no options.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • clear helper statistics on page 596
List of Sample Output	show helper statistics on page 606
Output Fields	Table 149 on page 605 lists the output fields for the show helper statistics command. Output fields are listed in the approximate order in which they appear.

Table 149: show helper statistics Output Fields

Field Name	Field Description
domain	<p>Statistics for Domain Name System (DNS) forwarding:</p> <ul style="list-style-type: none"> • Received packets—Packets received for this service. • Forwarded packets—Packets forwarded for this service. • Dropped packets—Total number of packets dropped for this service. • Due to no interface in fud database—Number of packets dropped because the packet came in on an interface that the UDP forwarding process did not identify as active. • Due to an error during packet read—Number of packets dropped because an error occurred when the packet was read from the wire. • Due to an error during packet send—Number of packets dropped because an error occurred when the packet was sent to the wire.

Table 149: show helper statistics Output Fields (*continued*)

Field Name	Field Description
tftp	<p>Statistics for Trivial File Transfer Protocol (TFTP) forwarding:</p> <ul style="list-style-type: none"> • Received packets—Packets received for this service. • Forwarded packets—Packets forwarded for this service. • Dropped packets—Total number of packets dropped for this service. <p>Reasons for dropped packets include:</p> <ul style="list-style-type: none"> • Due to no interface in fud database—Number of packets dropped because the packet came in on an interface that the UDP forwarding process did not identify as active. • Due to no matching routing instance—Number of packets dropped because the packet had no matching routing instance. • Due to an error during packet read—Number of packets dropped because an error occurred when the packet was read from the wire. • Due to an error during packet send—Number of packets dropped because an error occurred when the packet was sent to the wire. • Due to invalid server address—Number of packets dropped because the packet contained an invalid server address. • Due to no valid local address—Number of packets dropped because the packet contained no local address. • Due to no route to server/client—Number of packets dropped because the packet contained no route to the server or the client.

```

show helper statistics user@host> show helper statistics
                        domain: Received packets: 0
                        Forwarded packets: 0
                        Dropped packets: 0
                        Due to no interface in fud database: 0
                        Due to an error during packet read: 0
                        Due to an error during packet send: 0
tftp: Received packets: 0
      Forwarded packets: 0
      Dropped packets: 0
      Due to no interface in fud database: 0
      Due to no matching routing instance: 0
      Due to an error during packet read: 0
      Due to an error during packet send: 0
      Due to invalid server address: 0
      Due to no valid local address: 0
      Due to no route to server/client: 0

```

Routing Policy Operational Mode Commands

Table 150 on page 607 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot routing policy filters. Commands are listed in alphabetical order.

Table 150: Routing Policy Operational Mode Commands

Task	Command
Display configured routing policies.	show policy
Display configured policy conditions and associated routes.	show policy conditions
Test import and export policies.	test policy



NOTE: For information about how to configure routing policy filters, see the *Junos Policy Framework Configuration Guide*.

show policy

Syntax	show policy <logical-system (all <i>logical-system-name</i>)> < <i>policy-name</i> >
Syntax (EX Series Switch)	show policy < <i>policy-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display information about configured routing policies.
Options	none—List the names of all configured routing policies. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. <i>policy-name</i> —(Optional) Show the contents of the specified policy.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> show policy damping on page 58
List of Sample Output	show policy on page 608 show policy <i>policy-name</i> on page 610 show policy (Multicast Scoping) on page 610
Output Fields	Table 151 on page 608 lists the output fields for the show policy command. Output fields are listed in the approximate order in which they appear.

Table 151: show policy Output Fields

Field Name	Field Description
<i>policy-name</i>	Name of the policy listed.
<i>term</i>	Policy term listed.
<i>from</i>	Match condition for the policy.
<i>then</i>	Action for the policy.

show policy

```

user@host> show policy
Configured policies:
__vrf-export-red-internal__
__vrf-import-red-internal__

```

```
red-export  
all_routes
```

```
show policy user@host> show policy test-statics
policy-name Policy test-statics:
              from
                3.0.0.0/8 accept
                3.1.0.0/16 accept
              then reject
```

```
show policy (Multicast user@host> show policy test-statics
Scoping) Policy test-statics:
              from
                multicast-scoping == 8
```


show policy conditions

Syntax	<pre>show policy conditions <condition-name> <detail> <dynamic> <logical-system (all logical-system-name)></pre>
Syntax (EX Series Switch)	<pre>show policy conditions <condition-name> <detail> <dynamic></pre>
Release Information	<p>Command introduced in Junos OS Release 9.0.</p> <p>Command introduced in Junos OS Release 9.0 for EX Series switches.</p>
Description	<p>Display all the configured conditions as well as the routing tables with which the configuration manager is interacting. If the detail keyword is included, the output also displays dependent routes for each condition.</p>
Options	<p>none—Display all configured conditions and associated routing tables.</p> <p>condition-name—(Optional) Display information about the specified condition only.</p> <p>detail—(Optional) Display the specified level of output.</p> <p>dynamic—(Optional) Display information about the conditions in the dynamic database.</p> <p>logical-system (all logical-system-name)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show policy conditions detail on page 612
Output Fields	<p>Table 152 on page 611 lists the output fields for the show policy conditions command. Output fields are listed in the approximate order in which they appear.</p>

Table 152: show policy conditions Output Fields

Field Name	Field Description	Level of Output
Condition	Name of configured condition.	All levels
event	Condition type. If the if-route-exists option is configured, the event type is: Existence of a route in a specific routing table.	All levels
Dependent routes	List of routes dependent on the condition, along with the latest generation number.	detail
Condition tables	List of routing tables associated with the condition, along with the latest generation number and number of dependencies.	All levels

Table 152: show policy conditions Output Fields (*continued*)

Field Name	Field Description	Level of Output
If-route-exists conditions	List of conditions configured to look for a route in the specified table.	All levels

```
show policy conditions detail
user@host> show policy conditions detail
Configured conditions:
Condition cond1, event: Existence of a route in a specific routing table
Dependent routes:
  4.4.4.4/32, generation 3
  6.6.6.6/32, generation 3
  10.10.10.10/32, generation 3

Condition cond2, event: Existence of a route in a specific routing table
Dependent routes:
  None

Condition tables:
Table inet.0, generation 4, dependencies 3, If-route-exists conditions: cond1
cond2
```

test policy

Syntax	<code>test policy <i>policy-name</i> <i>prefix</i></code>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Test a policy configuration to determine which prefixes match routes in the routing table.
Options	<i>policy-name</i> —Name of a policy. <i>prefix</i> —Destination prefix to match.
Additional Information	All prefixes in the default unicast routing table (inet.0) that match prefixes that are the same as or longer than the specific prefix are processed by the from clause in the specified policy. All prefixes accepted by the policy are displayed. The test policy command evaluates a policy differently from the Border Gateway Protocol (BGP) import process. When testing a policy that contains an interface match condition in the from clause, the test policy command uses the match condition. In contrast, BGP does not use the interface match condition when evaluating the policy against routes learned from internal BGP (IBGP) or external BGP (EBGP) multihop peers.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show policy damping on page 58
List of Sample Output	test policy on page 613
Output Fields	For information about output fields, see the output field tables for the show route command, the show route detail command, the show route extensive command, or the show route terse command.
test policy	<pre> user@host> test policy test-statics 3.0.0.1/8 inet.0: 44 destinations, 44 routes (44 active, 0 holddown, 0 hidden) Prefixes passing policy: 3.0.0.0/8 *[BGP/170] 16:22:46, localpref 100, from 10.255.255.41 AS Path: 50888 I > to 10.11.4.32 via en0.2, label-switched-path 12 3.3.3.1/32 *[IS-IS/18] 2d 00:21:46, metric 0, tag 2 > to 10.0.4.7 via fxp0.0 3.3.3.2/32 *[IS-IS/18] 2d 00:21:46, metric 0, tag 2 > to 10.0.4.7 via fxp0.0 3.3.3.3/32 *[IS-IS/18] 2d 00:21:46, metric 0, tag 2 > to 10.0.4.7 via fxp0.0 3.3.3.4/32 *[IS-IS/18] 2d 00:21:46, metric 0, tag 2 > to 10.0.4.7 via fxp0.0 Policy test-statics: 5 prefixes accepted, 0 prefixes rejected </pre>

PART 3

MPLS

- LDP Operational Mode Commands on page 617
- MPLS Operational Mode Commands on page 645
- RSVP Operational Mode Commands on page 695

LDP Operational Mode Commands

Table 153 on page 617 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Label Distribution Protocol (LDP). Commands are listed in alphabetical order.

Table 153: LDP Operational Mode Commands

Task	Command
Clear LDP neighbors.	clear ldp neighbor
Clear LDP sessions.	clear ldp session
Clear LDP statistics.	clear ldp statistics
Display entries in the LDP database.	show ldp database
Display forwarding equivalence class filters.	show ldp fec-filters
Display the status of interfaces on which LDP is running.	show ldp interface
Display LDP neighbors.	show ldp neighbor
Display the configured named paths that are used by LDP.	show ldp path
Display LDP routing table entries.	show ldp route
Display currently active LDP sessions.	show ldp session
Display LDP statistics.	show ldp statistics
Display LDP traffic statistics.	show ldp traffic-statistics



NOTE: For more LDP-related commands, such as `show route protocol`, `show route instance`, and `show route table`, see Protocol-Independent Routing Operational Mode Commands.

For information about how to configure LDP, see the *Junos MPLS Applications Configuration Guide*.

clear ldp neighbor

Syntax	clear ldp neighbor <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> < <i>neighbor</i> >
Description	Tear down Label Distribution Protocol (LDP) neighbor connections.
Options	<p>none—Tear down connections with all LDP neighbors for all routing instances.</p> <p>instance <i>instance name</i>—(Optional) Clear the LDP session for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>neighbor</i>—(Optional) Clear an LDP session for the specified neighbor (IP address) only.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show ldp neighbor on page 629
List of Sample Output	clear ldp neighbor on page 619
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ldp neighbor	user@host> clear ldp neighbor

clear ldp session

Syntax	clear ldp session <destination> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Clear Label Distribution Protocol (LDP) sessions.
Options	none—Clear LDP sessions for all destinations for all routing instances. <i>destination</i> —(Optional) Clear an LDP session for the specified destination (IP address). instance <i>instance-name</i> —(Optional) Clear the LDP session for the specified routing instance only. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show ldp session on page 635
List of Sample Output	clear ldp session on page 620
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ldp session	user@host> clear ldp session

clear ldp statistics

Syntax	clear ldp statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Set all Label Distribution Protocol (LDP) statistics to zero.
Options	<p>none—Set all LDP statistics to zero for all routing instances.</p> <p>instance <i>instance-name</i>—(Optional) Clear the LDP session for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show ldp statistics on page 639 • show ldp traffic-statistics on page 642
List of Sample Output	clear ldp statistics on page 621
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear ldp statistics	user@host> clear ldp statistics

show ldp database

Syntax	<pre>show ldp database <brief detail extensive> <inet l2circuit> <instance <i>instance-name</i>> <logical-system (all <i>logical-system-name</i>)> <session <i>session</i>></pre>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display entries in the Label Distribution Protocol (LDP) database.
Options	<p>none—Display standard information about all entries in the LDP database for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>inet l2circuit—(Optional) Display only IPv4 or Layer 2 circuit bindings.</p> <p>instance <i>instance-name</i>—(Optional) Display routing instance information for the specified instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>session <i>session</i>—(Optional) Display database for the specified session only. <i>session</i> is the destination address of the LDP session.</p>
Required Privilege Level	view
List of Sample Output	<p>show ldp database on page 624</p> <p>show ldp database l2circuit detail on page 624</p> <p>show ldp database session on page 624</p>
Output Fields	Table 154 on page 622 describes the output fields for the show ldp database command. Output fields are listed in the approximate order in which they appear.

Table 154: show ldp database Output Fields

Field Name	Field Description	Level of Output
Input label database	Label received from the other router.	All levels
Output label database	Label advertised to the other router.	All levels
<i>session-identifier</i>	Session identifier, which includes the local and remote label space identifiers.	All levels
Label	Label binding to a route prefix.	All levels

Table 154: show ldp database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Prefix	<p>Route prefix. It can be either the IP prefix or the Layer 2 encapsulation type in the format L2CKT control word status encapsulation-type vc-number, for example, L2CKT CtlfWord FRAME RELAY VC 2</p> <ul style="list-style-type: none"> • control-word-status—Displays whether the use of the control word has been negotiated for this virtual circuit: <ul style="list-style-type: none"> • NoCtrlWord • CtrlWord • encapsulation-type—Encapsulation type: <ul style="list-style-type: none"> • FRAME RELAY • ATM AAL5 • ATM CELL • VLAN • ETHERNET • CISCO_HDLC • PPP • VC number—Virtual circuit number. It can have any numeric value. • (Stale)—When you display the LDP database for the neighbor of a restarting router, the bindings learned from the restarting neighbor are displayed as (Stale). Stale bindings are deleted if they are not refreshed within the recovery time. 	All levels
MTU	MTU of the Layer 2 circuit. MTU is displayed for all encapsulation types except ATM cell encapsulations.	detail
TDM payload size	Size of the Time Division Multiplex (TDM) payload.	All levels
TDM bitrate	Bit rate for the TDM traffic.	All levels
Requested VLAN ID	(VLANs) VLAN identifier of the Layer 2 circuit.	detail
Cell bundle size	(ATM cell encapsulations) Maximum number of cells that the Layer 2 circuit can receive in a packet.	detail
State	<p>State of the label binding:</p> <ul style="list-style-type: none"> • Active—Label binding has been installed and distributed appropriately. A label binding is almost always in this state. • New—New label that has not yet been distributed. <ul style="list-style-type: none"> • MapRcv—Waiting to receive a label mapping message. • MapSend—Waiting to send a label mapping message. • RelRcv—Waiting to receive a label release message. • RelRsnd—Waiting to receive a label release message before resending label mapping message. • RelSend—Waiting to send a label release message. • ReqSend—Waiting to send a label request message. • W/dSend—Waiting to send a label withdrawal message. 	detail

Table 154: show ldp database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Age	Time elapsed since the binding was created.	detail

```

show ldp database      user@host> show ldp database
Input label database, 10.255.245.222:0--10.255.245.221:0
Label Prefix
3      10.255.245.221/32 (Stale)
100018 10.255.245.222/32
100011 L2CKT FRAME RELAY VC 11
Output label database, 10.255.245.222:0--10.255.245.221:0
Label Prefix
3      10.255.245.221/32
100018 10.255.245.222/32
100011 L2CKT FRAME RELAY VC 1

```

```

show ldp database      user@host> show ldp database l2circuit detail
l2circuit detail      Input label database, 10.255.245.44:0--10.255.245.45:0
Label Prefix
100176 L2CKT CtrlWord ATM CELL (VC Mode) VC 100
Cell bundle size: 80
State: Active
Age: 9:48
100256 L2CKT CtrlWord FRAME RELAY VC 101
MTU: 4470
State: Active
Age: 9:48

Output label database, 10.255.245.44:0--10.255.245.45:0
Label Prefix
100048 L2CKT CtrlWord ATM CELL (VC Mode) VC 100
Cell bundle size: 80
State: Active
Age: 9:48
100112 L2CKT CtrlWord FRAME RELAY VC 101
MTU: 4470
State: Active
Age: 9:48

```

```

show ldp database      user@host> show ldp database session 10.1.1.195
session                Input label database, 10.0.0.194:0--10.1.1.195:0
Label Prefix
100002 10.255.245.197/32
100003 10.255.245.196/32
100004 10.0.0.194/32
3      10.1.1.195/32
100000 L2CKT NoCtrlWord FRAME RELAY VC 1
100001 L2CKT CtrlWord FRAME RELAY VC 2
Output label database, 10.0.0.194:0--10.1.1.195:0
Label Prefix
100003 10.255.245.197/32
100004 10.1.1.195/32
100002 10.255.245.196/32
3      10.0.0.194/32

```

```
100000    L2CKT CtrlWord FRAME RELAY VC 2
100001    L2CKT NoCtrlWord FRAME RELAY VC 1
```

show ldp fec-filters

Syntax	show ldp fec-filters <fec> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about configured Label Distribution Protocol (LDP) forwarding equivalence class (FEC) filters.
Options	<p>fec—(Optional) Display FEC filter information for the specified FEC.</p> <p>instance <i>instance-name</i>—(Optional) Display FEC filter information for the specified instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show ldp fec-filters on page 626
Output Fields	Table 155 on page 626 lists the output fields for the show ldp fec-filters command. Output fields are listed in the approximate order in which they appear.

Table 155: show ldp fec-filters Output Fields

Field Name	Field Description
Ingress	Names of the FEC filters on the ingress routers.
Transit	Names of the FEC filters on the transit routers.

```

show ldp fec-filters user@host> show ldp fec-filters 10/8
10.22.1.2/32
    Ingress: f1-10.22.1.2/32 (index: 3)
    Transit: (null) (index: 0)

```


show ldp interface

Syntax	show ldp interface <brief detail extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display the status of Label Distribution Protocol (LDP)-enabled interfaces.
Options	<p>none—Display standard status information about all LDP-enabled interface for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show ldp interface extensive on page 628
Output Fields	Table 156 on page 627 describes the output fields for the show ldp interface command. Output fields are listed in the approximate order in which they appear.

Table 156: show ldp interface Output Fields

Field Name	Field Description	Level of Output
Interface	Interface name.	All levels
Label space ID	Label space identifier that the router is advertising on the interface.	All levels
Nbr count	Number of neighbors on the interface.	All levels
Next hello	How long until the next hello packet is sent on this interface, in seconds.	All levels
Hello interval	One-third of the negotiated hold time (in seconds). If the user-configured value for the hello interval is smaller than the computed value, the user-configured value is used.	detail extensive
Hold time	Configured hold time, in seconds.	detail extensive
Transport address	Address to which the neighbor wants the local route to establish the LDP session.	extensive

Table 156: show ldp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Local hello interval	Locally configured hello interval.	extensive

```
show ldp interface extensive user@host> show ldp interface extensive
Interface          Label space ID      Nbr count  Next hello
fe-0/0/3.0         10.255.245.6:0      2           0
Hello interval: 1, Hold time: 15, Transport address: 10.255.245.6
Local hello interval: 2, Index: 69
```

show ldp neighbor

Syntax	show ldp neighbor <brief detail extensive> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> <neighbor-address>
Release Information	Command introduced before Junos OS Release 7.4. neighbor-address option added in Junos OS Release 8.5.
Description	Display Label Distribution Protocol (LDP) neighbor information.
Options	<p>none—Display standard information about LDP neighbors for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified routing instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>neighbor-address</i>—(Optional) Display information about the specified LDP neighbor.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ldp neighbor on page 619
List of Sample Output	show ldp neighbor extensive on page 630
Output Fields	Table 157 on page 629 describes the output fields for the show ldp neighbor command. Output fields are listed in the approximate order in which they appear.

Table 157: show ldp neighbor Output Fields

Field Name	Field Description	Level of Output
Address	IP address of the neighbor.	All levels
Interface	Interface over which the neighbor was discovered.	All levels
Label space ID	Label space identifier advertised by the neighbor.	All levels
Hold time	Remaining hold time before the neighbor expires, in seconds.	All levels
Transport address	Address to which the neighbor wants the local route to establish the LDP session.	detail
Configuration sequence	Counter that increments whenever the neighbor changes its configuration.	detail

Table 157: show ldp neighbor Output Fields (*continued*)

Field Name	Field Description	Level of Output
Up for	Length of time the LDP neighbor has been in operation.	detail extensive
Reference count	Reference count for the LDP neighbor.	extensive
Hold time	Displays the neighbor's hold time. The hold time is the proposed hold times for the local and peer routers.	extensive
Proposed local/peer	Hold time value proposed by the local router and the peer router.	extensive

```

show ldp neighbor extensive user@host> show ldp neighbor extensive
                             Address      Interface      Label space ID      Hold Time
                             192.168.37.23  so-1/0/0.0      10.255.245.5:0      44
                             Transport address: 10.255.245.5, Configuration sequence: 6
                             Up for 00:03:37
                             Reference count: 1
                             Hold time: 45, Proposed local/peer: 15/45

```

show ldp path

Syntax	show ldp path <brief detail extensive> <destination> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display Label Distribution Protocol (LDP) label-switched paths (LSPs).
Options	<p>none—Display standard information about all LDP LSPs for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p><i>destination</i>—(Optional) Restrict the output to entries that match the specified destination prefix.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show ldp path extensive on page 632
Output Fields	Table 158 on page 631 describes the output fields for the show ldp path command. Output fields are listed in the approximate order in which they appear.

Table 158: show ldp path Output Fields

Field Name	Field Description
Output Session (label)	Session ID and labels that this system has sent using LDP. These correspond to MPLS packets received.
Input Session (label)	Session ID and labels that this system has received using LDP. These correspond to MPLS packets transmitted.
route	MPLS route.
Attached route	Route corresponding to the LSP.
Ingress route	The router acts as the ingress for the LSP.
Reference count	Reference count for the LDP neighbor.
Transit route	Names of the forwarding equivalence class (FEC) filters on the transit routers.

Table 158: show ldp path Output Fields (*continued*)

Field Name	Field Description
Global label	MPLS label that is used globally.

```
show ldp path extensive user@host> show ldp path extensive
Output Session (label)      Input Session (label)
10.255.14.220:0(3)          ( )
    Attached route: 10.255.14.221/32
    Reference count: 3, Global label: 3
10.255.14.220:0(100000)      10.255.14.220:0(3)
    Attached route: 10.255.14.220/32, Ingress route
    Reference count: 2, Transit route, Global label: 100000
10.255.14.220:0(100001)      10.255.14.220:0(100001)
    Attached route: 10.255.14.214/32, Ingress route
    Reference count: 2, Transit route, Global label: 100001
```

show ldp route

Syntax	show ldp route <brief detail extensive> <destination> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display the entries in the Label Distribution Protocol (LDP) internal topology table. The internal topology table contains routes from inet.0 and inet.3 and is used when binding a label to a forwarding equivalence class (FEC).
Options	<p>none—Display standard information about all entries in the LDP internal topology table for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p><i>destination</i>—(Optional) Restrict the output to entries that are longer than the specified destination prefix and prefix length.</p> <p>instance <i>instance-name</i>—(Optional) Display entries for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	show ldp route detail on page 634
Output Fields	Table 159 on page 633 describes the output fields for the show ldp route command. Output fields are listed in the approximate order in which they appear.

Table 159: show ldp route Output Fields

Field Name	Field Description
Destination	Destination prefix.
Next-hop intf	Interface that is the next hop to the destination prefix.
Next-hop address	IP address of the next hop.
Bound to outgoing label	The route has been bound to LSPs with the label being distributed for that LSP.

show ldp route detail

user@host> show ldp route detail

Destination	Next-hop intf	Next-hop address
10.10.255.1/32	so-2/3/0	
*10.10.255.3/32	so-1/0/0	10.10.1.3
Bound to outgoing label 100001		
*10.10.255.1/32	so-2/3/0	
10.10.255.4/32	so-0/0/0	192.168.1.213
*10.10.255.4/32	so-0/0/0	192.168.1.213
Bound to outgoing label 100002		
10.10.255.6/32	so-0/0/0	192.168.1.215
*10.10.255.6/32	so-0/0/0	192.168.1.215
Bound to outgoing label 100000		
*10.10.255.2/32		
Bound to outgoing label 3		
0.0.0.0/0	so-0/0/0	192.168.1.254
10.10.255.3/32	so-1/0/0	10.10.1.3

show ldp session

Syntax	show ldp session <brief detail extensive> <destination> <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display information about Label Distribution Protocol (LDP) sessions.
Options	<p>none—Display standard information about all LDP sessions for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>destination—(Optional) Restrict LDP session display to the specified address.</p> <p>instance <i>instance-name</i>—(Optional) Display routing instance information for the specified instance. If <i>instance-name</i> is omitted, information is displayed for the master instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ldp session on page 620
List of Sample Output	show ldp session extensive on page 637
Output Fields	Table 160 on page 635 describes the output fields for the show ldp session command. Output fields are listed in the approximate order in which they appear.

Table 160: show ldp session Output Fields

Field Name	Field Description	Level of Output
Address	Transport address of the session.	to be provided
State	State of the session: Nonexistent , Connecting , Initialized , OpenRec , OpenSent , Operational , or Closing . The states correspond to the state diagram specified in Internet Draft LDP Specification draft-ietf-mpls-rfc3036bis-01.txt.	to be provided
Connection	TCP connection state: Closed , Opening , or Open .	to be provided
Hold time	Time remaining until the session will be closed, in seconds.	to be provided
Session ID	LDP identifiers of the peers of this session.	to be provided
Next keepalive	Time until next keepalive is sent, in seconds.	detail extensive

Table 160: show ldp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
Active	Whether the local router is playing the active role in the session and during session establishment.	detail extensive
Maximum PDU	Maximum PDU size for the session.	detail extensive
Hold time	Time remaining until the session will be closed, in seconds. This value corresponds to the one configured using the keepalive-timeout statement configured at the [edit protocols ldp] hierarchy level.	detail extensive
Neighbor count	Number of neighbors that are contributing to the session.	detail extensive
Keepalive interval	Keepalive interval, in seconds.	detail extensive
Connect retry interval	TCP connection retry interval, in seconds.	detail extensive
Local address	Local transport address.	detail extensive
Remote address	Remote transport address.	detail extensive
Up for	Time that this session has been up.	detail extensive
Last down	Time since the session last went down.	detail extensive
Reason	Reason the session went down: <ul style="list-style-type: none"> • Aborted graceful restart • Authentication key was changed • Bad type length value (TLV) • Bad protocol data unit (PDU) packets • Command-line interface (CLI) command • Connect time expired • Connection error • Connection reset • Error during initialization • Hold time expired • No adjacency or all adjacencies down • Notification received • Received notification from peer • Unexpected End of File (EOF) • Unknown reason 	detail extensive
Number of session flaps	Number of times the session changes from up to down.	detail extensive
Restarting	LDP is in the process of gracefully restarting.	detail extensive

Table 160: show ldp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
restart complete in nnn msec	Amount of time (in milliseconds) remaining until graceful restart is declared complete.	detail extensive
Local	<p>Information about graceful restart for the local end of an LDP session. Graceful restart and helper mode are independent.</p> <ul style="list-style-type: none"> • Restart—Status of the graceful restart feature at the local end of the LDP session: enabled or disabled. • Helper mode—Status of the helper mode feature at the local end of the LDP session: enabled or disabled. When this feature is enabled, the local end of the LDP session can help the restarting router with its LDP restart procedures. • Reconnect time—Amount of time to wait from when a restart is initiated until the router can exchange LDP messages with its neighbors. The default is 60000 msec and is not configurable. (Reconnect timeout refers to "FT Reconnect timeout" in draft-ietf-mpls-ldp-restart-06, <i>Internet Draft Graceful Restart Mechanism for LDP</i>.) 	detail extensive
Remote	<p>Information about graceful restart at the remote end of an LDP session. Graceful restart and helper mode are independent.</p> <ul style="list-style-type: none"> • Restart—Status of the graceful restart feature at the remote end of the LDP session: enabled or disabled. • Helper mode—Status of the helper mode feature at the remote end of the LDP session: enabled or disabled. When this feature is enabled, the remote end of the LDP session can help the restarting router with its LDP restart procedures. • Reconnect time—Amount of time in milliseconds from when a restart is initiated until the remote router can exchange LDP messages with its neighbors. 	detail extensive
Local maximum recovery time	Amount of time during which the restarting node attempts to recover its lost states with help from its neighbors (in milliseconds).	detail extensive
Next-hop addresses received	Next-hop addresses received on the session.	detail extensive
Queue depth	Number of messages that are queued for sending to the peers in the group.	extensive
Message type	<p>Type of message being sent.</p> <ul style="list-style-type: none"> • Total—Messages sent and received during the lifetime of the session. • Last 5 seconds—Messages sent and received during the current session. 	extensive

```

show ldp session extensive user@host> show ldp session extensive
Address: 10.255.70.103, State: Operational, Connection: Open, Hold time: 20
Session ID: 10.255.71.52:0--10.255.70.103:0
Next keepalive in 0 seconds
Active, Maximum PDU: 4096, Hold time: 30, Neighbor count: 1
Keepalive interval: 10, Connect retry interval: 1
Local address: 10.255.71.52, Remote address: 10.255.70.103
Up for 00:01:40
Last down 00:01:41 ago; Reason: received notification from peer

```

Number of session flaps: 3
Local - Restart: disabled, Helper mode: enabled
Remote - Restart: disabled, Helper mode: enabled
Local maximum recovery time: 240000 msec
Next-hop addresses received:
so-2/0/0.0
11.2.3.1
11.2.4.1
11.2.5.1
11.1.2.2
192.168.70.103
10.255.70.103

Queue depth: 0

Message type	Total		Last 5 seconds	
	Sent	Received	Sent	Received
Initialization	4	4	0	0
Keepalive	114	114	0	0
Notification	0	3	0	0
Address	4	4	0	0
Address withdraw	0	0	0	0
Label mapping	8	8	0	0
Label request	0	0	0	0
Label withdraw	0	0	0	0
Label release	0	0	0	0
Label abort	0	0	0	0

show ldp statistics

Syntax	show ldp statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display Label Distribution Protocol (LDP) statistics.
Options	<p>none—Display LDP statistics for all routing instances.</p> <p>instance <i>instance-name</i>—(Optional) Display information for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ldp statistics on page 621
List of Sample Output	show ldp statistics on page 640
Output Fields	Table 161 on page 639 lists the output fields for the show ldp statistics command. Output fields are listed in the approximate order in which they appear.

Table 161: show ldp statistics Output Fields

Field Name	Field Description
Total Sent, Received	Total number of each message type sent and received.
Last 5 seconds Sent, Received	Number of each message type sent and received in the last 5 seconds.

Table 161: show ldp statistics Output Fields (*continued*)

Field Name	Field Description
Message type	<p>LDP message types:</p> <ul style="list-style-type: none"> • Hello—Messages that enable LDP nodes to discover one another and to detect the failure of a neighbor or of the link to the neighbor. • Initialization—Messages that indicate an LDP session has started. • Keepalive—Messages that ensure that the keepalive timeout is not exceeded. • Notification—Advisory information and signal error information. • Address—Messages with address information. • Address withdrawal—Messages regarding address withdrawal. • Label mapping—Messages with label mapping information. • Label request—Request for a label mapping from a neighboring router. • Label withdrawal—Withdrawal message sent by the downstream LSR to recall a label that it previously mapped. If an LSR that has received a label mapping subsequently determines that it no longer needs that label, it can send a label release message that frees the label for use. • Label release—Message sent by the downstream LSR to recall a label that it previously mapped. If an LSR that has received a label mapping subsequently determines that it no longer needs that label, it can send a label release message that frees the label for use. • Label abort—Messages about label interruptions. • All UDP—All hello messages sent by LSRs to the well-known UDP port, 646. • All TCP—All LDP session messages.
Event type	LDP events and errors.
Total	Total number of each event or error.
Last 5 seconds	Number of each event or error in the last 5 seconds.

```

show ldp statistics user@host> show ldp statistics
Message type          Total
                        Sent      Received
Hello                 265        263
Initialization         2         2
Keepalive             112       111
Notification           0         0
Address                2         2
Address withdraw       0         0
Label mapping          7         6
Label request          0         0
Label withdraw         2         0
Label release          0         2
Label abort            0         0
All UDP                265       263
All TCP                123       121

                        Last 5 seconds
                        Sent      Received
Hello                 2         2
Initialization         0         0
Keepalive              1         0
Notification           0         0
Address                0         0
Address withdraw       0         0
Label mapping          0         0
Label request          0         0
Label withdraw         0         0
Label release          0         0
Label abort            0         0
All UDP                2         2
All TCP                1         0

Event type          Total      Last 5 seconds
Sessions opened      2         0
Sessions closed      0         0
Topology changes     11        0

```

No interface	0	0
No session	0	0
No adjacency	0	0
Unknown version	0	0
Malformed PDU	0	0
Malformed message	0	0
Unknown message type	0	0
Inappropriate message	0	0
Malformed TLV	0	0
Bad TLV value	0	0
Missing TLV	0	0
PDU too large	0	0

show ldp traffic-statistics

Syntax	show ldp traffic-statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display Label Distribution Protocol (LDP) traffic statistics.
Options	<p>none—Display LDP traffic statistics for all routing instances.</p> <p>instance <i>instance-name</i>—(Optional) Display LDP traffic statistics for the specified routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Additional Information	To obtain output from this command, you must configure the traffic-statistics statement for the LDP protocol. For more information, see the <i>Junos MPLS Applications Configuration Guide</i> .
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear ldp statistics on page 621
List of Sample Output	show ldp traffic-statistics on page 643
Output Fields	Table 162 on page 642 lists the output fields for the show ldp traffic-statistics command. Output fields are listed in the approximate order in which they appear.

Table 162: show ldp traffic-statistics Output Fields

Field Name	Field Description
Message type	LDP message types.
FEC	Forwarding equivalence class (FEC) for which LDP traffic statistics are collected.
Type	Type of traffic originating from a router, either Ingress (originating from this router) or Transit (forwarded through this router).
Packets	Number of packets passed by the FEC since its LSP came up.
Bytes	Number of bytes of data passed by the FEC since its LSP came up.
Shared	Whether a label is shared by prefixes: Yes or No . A Yes value indicates that several prefixes are bound to the same label (for example, when several prefixes are advertised with an egress policy). The LDP traffic statistics for this case apply to all the prefixes and should be treated as such.


```
show ldp user@host> show ldp traffic-statistics
traffic-statistics FEC Type Packets Bytes Shared
10.35.3.0/30 Transit 0 0 Yes
Ingress 0 0 No
10.35.10.1/32 Transit 0 0 Yes
Ingress 0 0 No
10.255.245.214/32 Transit 0 0 No
Ingress 11 752 No
192.168.37.36/30 Transit 0 0 Yes
Ingress 0 0 No
```


MPLS Operational Mode Commands

Table 163 on page 645 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Multiprotocol Label Switching (MPLS). Commands are listed in alphabetical order.

Table 163: MPLS Operational Mode Commands

Task	Command
Disconnect and restart dynamic LSPs that originate from this router.	clear mpls lsp
Manually trigger a bandwidth allocation adjustment for active LSP paths.	request mpls lsp adjust-autobandwidth
Display information about configured cross-connects.	show connections
Display peer and traffic engineering link information.	show link-management
Display peer link information.	show link-management peer
Display peer and traffic engineering link information (routing process).	show link-management routing
Display link management statistics.	show link-management statistics
Display traffic engineering link information.	show link-management te-link
Display MPLS administrative groups.	show mpls admin-groups
Display MPLS LSP call admission control (CAC) related information.	show mpls call-admission-control
Display CSPF statistics.	show mpls cspf
Display DiffServ traffic engineering classes.	show mpls diffserv-te
Display the status of interfaces on which MPLS is running.	show mpls interface

Table 163: MPLS Operational Mode Commands (*continued*)

Task	Command
Display configured LSPs on this router, as well as all ingress, transit, and egress LSPs.	show mpls lsp
Display configured named paths that are used in dynamic MPLS.	show mpls path
Display configured static LSPs on this router, as well as all ingress, transit, and egress static LSPs.	show mpls static-lsp
Display entries in the traffic engineering database.	show ted database
Display current traffic engineering database links.	show ted link
Display protocols contributing to the traffic engineering database.	show ted protocol



NOTE: For more MPLS-related commands, such as **show route ccc**, **show route protocol**, **show route instance**, and **show route table**, see Protocol-Independent Routing Operational Mode Commands.

For information about how to configure MPLS, see the *Junos MPLS Applications Configuration Guide*.

clear mpls lsp

Syntax	<pre>clear mpls lsp <autobandwidth> <logical-system (all <i>logical-system-name</i>)> <name <i>name</i>> <optimize optimize-aggressive> <path <i>regular-expression</i>> <statistics></pre>
Syntax (EX Series Switch)	<pre>clear mpls lsp <autobandwidth> <name <i>name</i>> <optimize optimize-aggressive> <path <i>regular-expression</i>> <statistics></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	Release the routes and states associated with MPLS label-switched paths (LSPs), and start new LSPs.



CAUTION: This command disconnects existing Resource Reservation Protocol (RSVP) sessions on the ingress routing device. If there is a time lag between the old path being torn down and the new path being set up, this command might impact traffic traveling along the LSPs.

Options	<p>none—Reset and restart all LSPs that originated from this routing device; that is, all LSPs for which this routing device is the ingress routing device. Depending on the number of LSPs involved, it might take a while to restart all the LSPs.</p> <p>autobandwidth—(Optional) Clear LSP autobandwidth counters.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>name <i>name</i>—(Optional) Reset and restart the specified LSP or group of LSPs. You can include wildcard characters in the interface name, as described in the <i>Junos Network Interfaces Configuration Guide</i>.</p> <p>optimize optimize-aggressive—(Optional) Run nonpreemptive optimization or aggressive optimization computation now.</p> <p>path <i>regular-expression</i>—(Optional) Clear the specific LSP path matching the specified regular expression.</p> <p>statistics—(Optional) Clear LSP statistics.</p>
----------------	---

Required Privilege Level clear

Related Documentation

- [show mpls lsp on page 674](#)
- [show rsvp session on page 709](#)

List of Sample Output clear mpls lsp on page 648

Output Fields When you enter this command, you are provided feedback on the status of your request.

clear mpls lsp user@host> clear mpls lsp

request mpls lsp adjust-autobandwidth

Syntax	request mpls lsp adjust-autobandwidth <logical-system (all <i>logical-system-name</i>)> <name <i>lsp-name</i> >
Syntax (EX Series Switch)	request mpls lsp adjust-autobandwidth <name <i>lsp-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Manually trigger a bandwidth allocation adjustment for active label-switched paths (LSPs).
Options	<p>none—Manually trigger a bandwidth allocation adjustment for all active LSP paths.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>name <i>lsp-name</i>—(Optional) Manually trigger a bandwidth allocation adjustment on the specified LSP only.</p>
Additional Information	<p>For this command to work properly, the following conditions must exist:</p> <ul style="list-style-type: none"> Automatic bandwidth allocation must be enabled on the LSP. The parameters for adjustment interval and maximum average bandwidth are not reset after you issue the request mpls lsp adjust-autobandwidth command. The difference between the adjusted bandwidth and the current LSP path bandwidth must be greater than the threshold limit.
Required Privilege Level	maintenance
List of Sample Output	request mpls lsp adjust-auto-bandwidth on page 649
Output Fields	When you enter this command, you are provided feedback on the status of your request.
request mpls lsp adjust-auto-bandwidth	user@host> request mpls lsp adjust-auto-bandwidth

show connections

Syntax	<pre>show connections <brief extensive> <all interface-switch lsp-switch p2mp-receive-switch p2mp-transmit-switch remote-interface-switch> <down up up-down> <history> <labels> <logical-system (all <i>logical-system-name</i>)> <name> <status></pre>
Syntax (EX Series Switch)	<pre>show connections <brief extensive> <all interface-switch lsp-switch p2mp-receive-switch p2mp-transmit-switch remote-interface-switch> <down up up-down> <history> <labels> <name> <status></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	Display information about the configured circuit cross-connect (CCC) connections.
Options	<p>none—Display the standard level of output for all configured CCC connections.</p> <p>all—(Optional) Display all connections.</p> <p>brief extensive—(Optional) Display the specified level of output. Use history to display information about connection history. Use labels to display labels used for transmit and receive LSPs. Use status to display information about the connection and interface status.</p> <p>interface-switch—(Optional) Display interface switch connections only.</p> <p>lsp-switch—(Optional) Display LSP switch connections only.</p> <p>p2mp-receive-switch—(Optional) Display point-to-multipoint LSP to local interfaces switch connections only.</p> <p>p2mp-transmit-switch—(Optional) Display local interface to point-to-multipoint LSP switch connections only.</p> <p>remote-interface-switch—(Optional) Display remote interface switch connections only.</p> <p>down up up-down—(Optional) Display nonoperational, operational, or both kinds of connections.</p> <p>history—(Optional) Display information about connection history.</p>

labels—(Optional) Display labels used for transmit and receive.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

name—(Optional) Display information about the specified connection only.

status—(Optional) Display information about the connection and interface status.

Required Privilege Level view

Output Fields Table 164 on page 651 describes the output fields for the **show connections** command. Output fields are listed in the approximate order in which they appear.

Table 164: show connections Output Fields

Field Name	Field Description
CCC and TCC connections [Link Monitoring On Off]	Whether link monitoring is enabled: On or Off .
Legend for Status (St)	Connection or circuit status. See the output's legend for an explanation of the status field values.
Legend for connection types	Type of connection: <ul style="list-style-type: none"> • if-sw—Layer 2 switching cross-connect. • rmt-if—Remote interface switch. While graceful restart is in progress, rmt-if will display a state (St) of Restart. • lsp-sw—LSP stitching cross-connect. While graceful restart is in progress, lsp-sw will display a state (St) of Restart.
Legend for circuit types	Type of circuits: <ul style="list-style-type: none"> • intf—Interface circuit. • tlsp—Transmit LSP circuit. • rlsp—Receive LSP circuit.
Connection/Circuit	Name of the configured CCC connection.
Type	Type of connection.
St	State of the connection.
Time last up	Time that the connection or circuit last transitioned to the Up (operational) state.
# Up trans	Number of times that the connection or circuit has transitioned to the Up (operational) state.

```

show connections      user@switch> show connections
CCC and TCC connections [Link Monitoring On]
  Legend for status (St)
  UN -- uninitialized
  NP -- not present
  WE -- wrong encapsulation
  DS -- disabled
  Dn -- down
  -> -- only outbound conn is up
  <- -- only inbound conn is up
  Up -- operational
  RmtDn -- remote CCC down
  Restart -- restarting

  Legend for connection types
  if-sw: interface switching
  rmt-if: remote interface switching
  lsp-sw: LSP switching

  Legend for circuit types
  intf -- interface
  tlsp -- transmit LSP
  rlsp -- receive LSP

CCC Graceful restart : Restarting

Connection/Circuit      Type   St    Time last up    # Up trans
IFS-sw-ed
  so-1/0/2.0             intf  Up    Aug  5 15:39:15      1
  t1-0/1/2.0             intf  Up
SW-db
  so-1/0/3.0             rmt-if Restart      0
  pro4-ca                tlsp   Dn
  pro4-ac                rlsp   NP

```

show link-management

Syntax	show link-management
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) peer and traffic engineering link information.
Options	This command has no options.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show link-management peer on page 657 • show link-management routing on page 659 • show link-management statistics on page 662 • show link-management te-link on page 664
List of Sample Output	show link-management on page 656
Output Fields	Table 165 on page 653 describes the output fields for the show link-management command. Output fields are listed in the approximate order in which they appear.

Table 165: show link-management Output Fields

Field Name	Field Description
Peer Name	Name of the peer.
System identifier	Internal identifier for the peer. The range of values is 0 through 64,000.
State	State of the peer: Up or Down .
Control address	Address to which a control channel is established.
CC local ID	Identifier assigned to the control channel by the local peer. The range of values is 1 through 4,294,967,296.
CC remote ID	Identifier assigned to the control channel by the remote peer. The range of values is 1 through 4,294,967,296.
State	State of the control channel: Up or Down .
TxSeqNum	Sequence number of the hello message being sent to the peer. The range of values is 1 through 4,294,967,295.
RcvSeqNum	Sequence number of the last hello message received from the peer. The range of values is 0 through 4,294,967,295.

Table 165: show link-management Output Fields (*continued*)

Field Name	Field Description
Flags	Code that provides information about the control channel. Currently supports only code value R , which indicates that the control channel is restarting after a failure in the control plane, as when the Link Management Protocol (LMP) process starts or restarts.
TE links	Traffic-engineered links that are managed by their peer.
TE link name	Name of the traffic-engineered link.
State	State of the traffic-engineered link: Up , Down , or Init .
Local identifier	Identifier of the local side of the link.
Remote identifier	Identifier of the remote side of the link.
Local address	Address of the local side of the link.
Remote address	Address of the remote side of the link.
Encoding	Physical layer media type determined by the interfaces contained in the traffic-engineered link. Typical values include SDH/SONET , Ethernet , Packet , and PDH .
Switching	Type of switching that can be performed on the traffic-engineered link. Supported values are PSC-1 and Packet .
Minimum bandwidth	Smallest single allocation of bandwidth possible on the traffic-engineered link. This number is equal to the smallest bandwidth interface that is a member of the traffic-engineered link (in bps).
Maximum bandwidth	Largest single allocation of bandwidth possible on the traffic-engineered link. This number is equal to the largest bandwidth interface that is a member of the link (in bps).
Total bandwidth	Sum of the bandwidth, in bits per second (bps) and megabits per second (Mbps), of all interfaces that are members of the link.
Available bandwidth	Sum of the bandwidths of all interfaces that are members of the link and that are not yet allocated (in bps).
Name	Name of the interface.
State	State of the interface: Up or Down .
Local ID	Identifier of the local side of the interface.
Remote ID	Identifier of the remote side of the interface.
Bandwidth	Bandwidth, in bps or Mbps, of the member interface.
Used	Whether the resource is allocated to an LSP: Yes or No .

Table 165: show link-management Output Fields (*continued*)

Field Name	Field Description
LSP-name	LSP name.

```
show link-management user@host> show link-management
Peer name: PEER-A, System identifier: 11973
State: Up, Control address: 10.255.245.4
  CC local ID CC remote ID State      TxSeqNum  RcvSeqNum  Flags
    24547      24547 Up        1027      1026
TE links:
  pro4-ba

TE link name: pro4-ba, State: Init
Local identifier: 2662, Remote identifier: 0, Encoding: SDH/SONET, Switching:
PSC-1,
Minimum bandwidth: 155.52Mbps, Maximum bandwidth: 155.52Mbps, Total bandwidth:
155.52Mbps,
Available bandwidth: 155.52Mbps
  Name      State Local ID Remote ID      Bandwidth Used  LSP-name
  so-1/0/2   Up      21271      0      155.52Mbps     No
```

show link-management peer

Syntax	show link-management peer <name <i>peer-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) peer link information.
Options	none—Display all peer link information. name <i>peer-name</i> —(Optional) Display information for the specified peer only.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show link-management on page 653 • show link-management routing on page 659 • show link-management statistics on page 662 • show link-management te-link on page 664
List of Sample Output	show link-management peer on page 658
Output Fields	Table 166 on page 657 describes the output fields for the show link-management peer command. Output fields are listed in the approximate order in which they appear.

Table 166: show link-management peer Output Fields

Field Name	Field Description
Peer Name	Name of the peer.
System identifier	Internal identifier for the peer. The range of values is 0 through 64,000.
State	State of the peer: Up or Down .
Control address	Address to which a control channel is established.
Hello interval	How often the routing device sends Link Management Protocol (LMP) hello packets.
Hello dead interval	How long LMP waits before declaring the control channel to be dead. This is an interval during which the routing device receives no LMP hello packets from the neighbor on a control that is active or up.
CC local ID	Identifier assigned to the control channel by the local peer. The range of values is 1 through 4,294,967,296.
CC remote ID	Identifier assigned to the control channel by the remote peer. The range of values is 1 through 4,294,967,296.

Table 166: show link-management peer Output Fields (*continued*)

Field Name	Field Description
State	State of the control channel: Up or Down .
TxSeqNum	Sequence number of the hello message being sent to the peer. The range of values is 1 through 4,294,967,295 .
RcvSeqNum	Sequence number of the last hello message received from the peer. The range of values is 0 through 4,294,967,295 .
Flags	Code that provides information about the control channel. Currently supports only code value R , which indicates that the control channel is restarting after a failure in the control plane, as when the Link Management Protocol (LMP) process starts or restarts.
TE links	Traffic-engineered links that are managed by their peer.

```

show          user@host> show link-management peer
link-management peer Peer name: sonet, System identifier: 41448
                        State: Up, Control address: 70.70.70.70
                        Hello interval: 10000, Hello dead interval: 30000
                        CC local ID CC remote ID State      TxSeqNum  RcvSeqNum  Flags
                          3265          0 ConfSnd          1          0 R
                        TE links:
                        to-sonet

```


show link-management routing

Syntax	show link-management routing <peer <name <i>name</i> > te-link <name <i>name</i> >> <resource <name <i>name</i> >>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) peer or traffic engineering link information from the routing process.
Options	<p>none—Display all peer and traffic-engineered link information.</p> <p>peer <name <i>name</i>>—(Optional) Display information for all peers or for the specified peer only.</p> <p>resource <name <i>name</i>>—(Optional) Display information for all resources or for the specified resource only.</p> <p>te-link <name <i>name</i>>—(Optional) Display information for all traffic-engineered forwarding paths or for the specified path only.</p>
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show link-management on page 653 • show link-management peer on page 657 • show link-management statistics on page 662 • show link-management te-link on page 664
List of Sample Output	show link-management routing on page 661
Output Fields	Table 167 on page 659 describes the output fields for the show link-management routing command. Output fields are listed in the approximate order in which they appear.

Table 167: show link-management routing Output Fields

Field Name	Field Description
Peer Name	Name of the peer.
System identifier	Internal identifier for the peer. The range of values is 0 through 64,000.
State	State of the peer: Up or Down.
Control address	Address to which a control channel is established.
Control channel	Interface over which control packets are sent.

Table 167: show link-management routing Output Fields (*continued*)

Field Name	Field Description
State	State of the control channel.
TE link name	Traffic-engineered link name.
State	State of the traffic-engineered link: Up or Down .
Local identifier	Identifier of the local side of the link.
Remote identifier	Identifier of the remote side of the link.
Local address	Address of the local side of the link.
Remote address	Address of the remote side of the link.
Encoding	Physical layer media type determined by the interfaces contained in the traffic-engineered link. Typical values include SDH/SONET , Ethernet , and Packet .
Minimum bandwidth	Smallest single allocation of bandwidth, in bits per second (bps) or megabits per second (Mbps), possible on the traffic-engineered link. This number is equal to the smallest bandwidth interface that is a member of the traffic-engineered link.
Maximum bandwidth	Largest single allocation of bandwidth, in bps or Mbps, possible on the traffic-engineered link. This number is equal to the largest bandwidth interface that is a member of the link (in bps).
Total bandwidth	Sum of the bandwidth, in bps or Mbps, of all interfaces that are members of the link.
Available bandwidth	Sum of the bandwidth, in bps or Mbps, of all interfaces that are members of the link and that are not yet allocated.
Resource	Forwarding adjacency LSP information.
Type	Type of resource. The type is always a forwarding adjacency LSP.
State	State of the LSP: Up or Down .
System Identifier	Internal identifier for the peer. The range of values is 0 through 64,000 .
Total bandwidth	Bandwidth resource, in bps or Mbps, on the TE-link learned from the routing process.
Traffic parameters	<ul style="list-style-type: none"> • Encoding—Physical layer media type determined by the interfaces contained in the traffic-engineered link. Typical values include SDH/SONET, Ethernet, and Packet. • Switching—Type of switching that can be performed on the traffic-engineered link: PSC-1 and Packet. • Granularity—Layer 2 data for switching Layer 2 LSPs for this resource. Not supported. This value is always unknown.

```

show user@host> show link-management routing
link-management Peer name: __rpd:fe-0/1/0.0, System identifier: 2147483649
routing      State: Up, Control address: (null)
                Control-channel          State
                fe-0/1/0.0              Active

Peer name: __rpd:fe-0/1/2.0, System identifier: 2147483650
State: Up, Control address: (null)
Control-channel          State
fe-0/1/2.0              Active

Peer name: __rpd:so-0/2/0.0, System identifier: 2147483651
State: Down, Control address: (null)
Control-channel          State
so-0/2/0.0              Active

Peer name: __rpd:so-0/2/1.0, System identifier: 2147483652
State: Down, Control address: (null)
Control-channel          State
so-0/2/1.0              Active

...

TE link name: __rpd:fe-0/1/0.0, State: Up
Local identifier: 2147483649, Remote identifier: 0,
Local address: 192.168.37.66, Remote address: 192.168.37.66,
Encoding: Ethernet, Minimum bandwidth: 0bps, Maximum bandwidth: 100Mbps,
Total bandwidth: 100Mbps, Available bandwidth: 100Mbps

TE link name: __rpd:fe-0/1/2.0, State: Up
Local identifier: 2147483650, Remote identifier: 0,
Local address: 192.168.37.73, Remote address: 192.168.37.73,
Encoding: Ethernet, Minimum bandwidth: 0bps, Maximum bandwidth: 100Mbps,
Total bandwidth: 100Mbps, Available bandwidth: 100Mbps

TE link name: __rpd:so-0/2/0.0, State: Down
Local identifier: 2147483651, Remote identifier: 0,
Local address: 192.168.37.82, Remote address: 192.168.37.95,
Encoding: Ethernet, Minimum bandwidth: 0bps, Maximum bandwidth: 155.52Mbps,
Total bandwidth: 155.52Mbps, Available bandwidth: 155.52Mbps

...

Resource: falsp-bd, Type: LSP, State: Dn System identifier: 2147483652,
Total bandwidth: 0bps, Traffic parameters: Encoding: Packet, Switching: Packet,
Granularity: Unknown

Resource: falsp-be, Type: LSP, State: Up System identifier: 2147483654,
Total bandwidth: bw[1]=10Mbps, Traffic parameters: Encoding: Packet,
Switching: Packet, Granularity: Unknown

```

show link-management statistics

Syntax	show link-management statistics <peer <name <i>name</i> >>
Release Information	Command introduced in Junos OS Release 8.0. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display statistical information for Link Management Protocol (LMP) packets.
Options	none—Display information for all peers. peer <name <i>name</i> >—(Optional) Display information for all peers or for the specified peer only.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show link-management on page 653 • show link-management peer on page 657 • show link-management routing on page 659 • show link-management te-link on page 664
List of Sample Output	show link-management statistics on page 663
Output Fields	Table 168 on page 662 describes the output fields for the show link-management statistics command. Output fields are listed in the approximate order in which they appear.

Table 168: show link-management statistics Output Fields

Field Name	Field Description
Received packets	Number of received packets by message type. If the count for a message type is zero, that message type is not displayed. If the count for all message types is zero, this field is not displayed.
Received bad packets	Number of received bad packets by message type. If the count for a message type is zero, that message type is not displayed. If the count for all message types is zero, this field is not displayed.
Small packets	Number of packets that are too small.
Wrong protocol version	Number of packets specifying the wrong LMP version.
Messages for unknown peer	Number of packets destined for an unknown peer.
Messages for bad state	Number of packets indicating a state that does not match the recipient.
Stale acknowledgments	Number of configAck and LinkSummaryAck packets received that have a stale message ID.

Table 168: show link-management statistics Output Fields (*continued*)

Field Name	Field Description
Stale negative acknowledgments	Number of configNack and LinkSummaryNack packets received that have a stale message ID.
Sent packets	Number of sent packets by message type. If the count for a message type is zero, that message type is not displayed. If the count for all message types is zero, this field is not displayed.
Retransmitted packets	Number of retransmitted packets by message type. If the count for a message type is zero, that message type is not displayed. If the count for all message types is zero, this field is not displayed.
Dropped packets	Number of packets sent, by message type, that have been dropped by the receiver after the LMP retransmission interval has been exceeded. If the count for a message type is zero, that message type is not displayed. If the count for all message types is zero, this field is not displayed.

```

show link-management statistics
user@host> show link-management statistics peer pro4-a
Statistics for peer pro4-a
  Received packets
    Config: 1
    Hello: 2572
  Small packets: 0
  Wrong protocol version: 0
  Messages for unknown peer: 0
  Messages for bad state: 0
  Stale acknowledgments: 0
  Stale negative acknowledgments: 0
  Sent packets
    Config: 2
    ConfigAck: 1
    Hello: 2572
  Retransmitted packets
    Config: 1

```

show link-management te-link

Syntax	show link-management te-link <brief detail> <name <i>name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display the resources used to set up Multiprotocol Label Switching (MPLS) traffic-engineered forwarding paths.
Options	none—Display information for all traffic-engineered links. brief detail—(Optional) Display the specified level of output. name <i>name</i> —(Optional) Display information for the specified traffic-engineered link only.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> • show link-management on page 653 • show link-management peer on page 657 • show link-management routing on page 659 • show link-management statistics on page 662
List of Sample Output	show link-management te-link on page 665
Output Fields	Table 169 on page 664 describes the output fields for the show link-management te-link command. Output fields are listed in the approximate order in which they appear.

Table 169: show link-management te-link Output Fields

Field Name	Field Description
TE link name	Traffic-engineered link name.
State	State of the traffic-engineered link: Up or Down .
Local identifier	Identifier of the local side of the link.
Remote identifier	Identifier of the remote side of the link.
Local address	Address of the local side of the link.
Remote address	Address of the remote side of the link.
Encoding	Physical layer media type determined by the interfaces contained in the traffic-engineered link. Typical values include SDH/SONET , Ethernet , Packet , and PDH .

Table 169: show link-management te-link Output Fields (*continued*)

Field Name	Field Description
Switching	Type of switching that can be performed on the traffic-engineered link. Supported values are PSC-1 and Packet .
Minimum bandwidth	Smallest single allocation of bandwidth, in bits per second (bps) or megabits per second (Mbps), possible on the traffic-engineered link. This number is equal to the smallest bandwidth interface that is a member of the traffic-engineered link.
Maximum bandwidth	Largest single allocation of bandwidth, in bps or Mbps, possible on the traffic-engineered link. This number is equal to the largest bandwidth interface that is a member of the link.
Total bandwidth	Sum of the bandwidth, in bps or Mbps, of all interfaces that are members of the link (in bps).
Available Bandwidth	Sum of the bandwidth, in bps or Mbps, of all interfaces that are members of the link and that are not yet allocated.
Name	Name of the interface.
State	State of the interface: Up or Down .
Local ID	Identifier of the local side of the interface.
Remote ID	Identifier of the remote side of the interface.
Bandwidth	Bandwidth, in bps or Mbps, of the member interface.
Used	Whether the resource is allocated to an LSP: Yes or No .
LSP-name	LSP name.

```

show user@host> show link-management te-link
link-management TE link name: FA-bd, State: Up
te-link      Local identifier: 4144, Remote identifier: 0, Local address: 2.2.2.1,
             Remote address: 2.2.2.2, Encoding: Ethernet, Switching: Packet,
             Minimum bandwidth: 0bps, Maximum bandwidth: 0bps, Total bandwidth: 0bps,
             Available bandwidth: 0bps
             Name      State Local ID Remote ID      Bandwidth Used LSP-name
             falsp-bd  Dn      43077      0              0bps No
             TE link name: FA-be, State: Up
             Local identifier: 4145, Remote identifier: 0, Local address: 1.1.1.1,
             Remote address: 1.1.1.2, Encoding: Ethernet, Switching: Packet,
             Minimum bandwidth: 0bps, Maximum bandwidth: 10Mbps, Total bandwidth: 10Mbps,
             Available bandwidth: 8Mbps
             Name      State Local ID Remote ID      Bandwidth Used LSP-name
             falsp-be  Up      43076      0             10Mbps Yes  e2e1sp-bf

```

show mpls admin-groups

Syntax	show mpls admin-groups <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show mpls admin-groups
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about configured Multiprotocol Label Switching (MPLS) administrative groups.
Options	none—Display information about the configured MPLS administrative groups. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show mpls admin-groups on page 666
Output Fields	Table 170 on page 666 describes the output fields for the show mpls admin-groups command. Output fields are listed in the approximate order in which they appear.

Table 170: show mpls admin-groups Output Fields

Field Name	Field Description
Group	Name of the administrative group.
Bit index	Value assigned to the administrative group.

```

show mpls      user@host> show mpls admin-groups
admin-groups  Group      Bit index
                black      3
                blue       2
                gold       1
                green      0

```


show mpls call-admission-control

Syntax	show mpls call-admission-control <logical-system (all <i>logical-system-name</i>)> < <i>lsp-name</i> >
Syntax (EX Series Switch)	show mpls call-admission-control < <i>lsp-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) label-switched path (LSP) call admission control (CAC) information.
Options	<p>none—Display CAC information for all LSPs.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>lsp-name</i>—(Optional) Display CAC information for the specified LSP only.</p>
Additional Information	The available bandwidth on an LSP path at a particular class type is the total path bandwidth at that class type minus the total bandwidth reserved by any Layer 2 connection at that class type.
Required Privilege Level	view
List of Sample Output	show mpls call-admission-control on page 668
Output Fields	Table 171 on page 667 describes the output fields for the show mpls call-admission-control command. Output fields are listed in the approximate order in which they appear.

Table 171: show mpls call-admission-control Output Fields

Field Name	Field Description
Available bandwidth	Current available bandwidth on each LSP path. Depending on whether the LSP is an E-LSP or a regular LSP, either per-class bandwidth or a single bandwidth value (corresponding to best-effort bandwidth at ct0) is displayed. The available bandwidth on an LSP path at a particular class type is the total path bandwidth at that class type minus the total bandwidth reserved by some Layer 2 connections at that class type.
Layer2 connections	Different Layer 2 connections that had some bandwidth requirement and were admitted into an LSP path.
LSP name	LSP pathname.
Neighbor address	Neighbor address from which CAC and bandwidth booking are configured for Layer 2 circuits.
Circuit	Interface name and circuit information.

Table 171: show mpls call-admission-control Output Fields (*continued*)

Field Name	Field Description
Primary	LSP's primary standby path.
Standby	LSP's secondary standby path.
VC bandwidth	Bandwidth constraints associated with a Layer 2 circuit route.

```

show mpls      user@host# show mpls call-admission-control
call-admission-control
    LSP name: pro1-be
    *Primary
    Available bandwidth: 0bps

    LSP name: pro1-be-1
    *Primary
    Available bandwidth: 60kbps

    LSP name: pro1-be-gold
    *Primary
    Available bandwidth: <ct0 50kbps> <ct1 20kbps> <ct2 30kbps> <ct3 0bps>
    Layer2 connections:
    Neighbor address: 10.255.245.215, Circuit: so-0/3/0.0(vc 5)
    VC bandwidth: <ct0 50kbps> <ct1 40kbps> <ct2 40kbps>

    LSP name: pro1-be-gold-2
    *Primary
    Available bandwidth: <ct0 0bps> <ct1 40kbps> <ct2 40kbps> <ct3 0bps>

    LSP name: pro1-be-silver
    *Primary  prim1
    Available bandwidth: <ct0 10kbps> <ct1 20kbps> <ct2 0bps> <ct3 40kbps>
    Layer2 connections:
    Neighbor address: 10.255.245.215, Circuit: so-0/3/0.1(vc 3)
    VC bandwidth: <ct0 20kbps> <ct1 20kbps>
    Standby  sec1
    Available bandwidth: <ct0 10kbps> <ct1 10kbps> <ct2 20kbps> <ct3 0bps>
    Layer2 connections:
    Neighbor address: 10.255.245.215, Circuit: so-0/3/0.1(vc 3)
    VC bandwidth: <ct0 20kbps> <ct1 20kbps>

```

show mpls cspf

Syntax	show mpls cspf <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show mpls cspf
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) Constrained Shortest Path First (CSPF) statistics.
Options	none—Display MPLS CSFP statistics. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show mpls cspf on page 670
Output Fields	Table 172 on page 669 describes the output fields for the show mpls cspf command. Output fields are listed in the approximate order in which they appear.

Table 172: show mpls cspf Output Fields

Field Name	Field Description
Queue length	Number of LSPs queued for automatic path computation.
current	Current queue length.
maximum	Maximum queue length (high-water mark).
dequeued	Number of aborted computation attempts.
Paths	Counters for label-switched path computations.
total	Sum of the next four fields.
successful	Number of path computations that were successfully completed.
no route	Number of path computations that failed because the destination is unreachable.
Sys Error	Number of path computations that failed because of lack of memory.

Table 172: show mpls cspf Output Fields (*continued*)

Field Name	Field Description
CSPFs	Total number of CSPF computations. A single path might require multiple CSPF computations.
Time	Time, in seconds, required to perform the label-switched path computation.
Total	Total amount of time consumed by the CSPF path computation algorithm.
CSPFs	Total number of CSPF computations.
Avg per CSPF	Average amount of time required for each CSPF computation.
% of rpd	Percentage of routing process CPU used in the CSPF computation.

show mpls cspf

user@host> show mpls cspf

CSPF statistics

Queue length	current	maximum	dequeued		
	0	0	0		
Paths	total	successful	no route	sys error	CSPFs
	0	0	0	0	0
Time (secs)	total	CSPFs	avg per CSPF	% of rpd	
	0.000000	0.000000	0.000000	0.0000	

show mpls diffserv-te

Syntax	show mpls diffserve-te <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show mpls diffserve-te
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) label-switched path (LSP) Differentiated Services (DiffServ) class and preemption priority information.
Options	none—Display DiffServ classes and priorities used by MPLS LSPs. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show mpls diffserv-te on page 671
Output Fields	Table 173 on page 671 describes the output fields for the show mpls diffserv-te command. Output fields are listed in the approximate order in which they appear.

Table 173: show mpls diffserv-te Output Fields

Field Name	Field Description
Bandwidth model	Bandwidth constraint model supported. The maximum allocation model (MAM) for EXP-inferred LSPs (E-LSPs) is currently supported.
TE class	DiffServ traffic engineering class.
Traffic class	MPLS class type that corresponds to the DiffServ traffic engineering class: <ul style="list-style-type: none"> • ct0—Best effort • ct1—Assured forwarding • ct2—Expedited forwarding • ct3—Network control
Priority	MPLS preemption priority for this class type, a value from 0 through 7. Interior gateway protocols (IGPs) distribute information about the available bandwidth for each traffic engineering class.

```

user@host> show mpls diffserv-te
Bandwidth model: Maximum Allocation Model with support for E-LSPs.
TE class      Traffic class      Priority

```

te0	ct0	3
te1	ct1	2

show mpls interface

Syntax	show mpls interface <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show mpls interface
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about Multiprotocol Label Switching (MPLS)-enabled interfaces.
Options	none—Display information about MPLS-enabled interfaces. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Additional Information	MPLS is enabled on an interface when the interface is configured with both the set protocol mpls interface <i>interface-name</i> and set interface <i>interface-name</i> unit 0 family mpls statements.
Required Privilege Level	view
List of Sample Output	show mpls interface on page 673
Output Fields	Table 174 on page 673 describes the output fields for the show mpls interface command. Output fields are listed in the approximate order in which they appear.

Table 174: show mpls interface Output Fields

Field Name	Field Description
Interface	Name of the interface.
State	State of the interface: Up or Dn (down).
Administrative groups	Administratively assigned colors of the link.

```

show mpls interface  user@host> show mpls interface
Interface  State      Administrative groups
so-1/0/0.0 Up         Blue Yellow Red

```

show mpls lsp

Syntax	<pre>show mpls lsp <brief detail extensive terse> <bidirectional unidirectional> <bypass> <defaults> <descriptions> <down up> <logical-system (all <i>logical-system-name</i>)> <lsp-type> <name <i>name</i>> <p2mp> <statistics> <transit></pre>
Syntax (EX Series Switch)	<pre>show mpls lsp <brief detail extensive terse> <bidirectional unidirectional> <bypass> <descriptions> <down up> <lsp-type> <name <i>name</i>> <p2mp> <statistics> <transit></pre>
Release Information	Command introduced before Junos OS Release 7.4. defaults option added in Junos OS Release 8.5. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about configured and active dynamic Multiprotocol Label Switching (MPLS) label-switched paths (LSPs).
Options	<p>none—Display standard information about all configured and active dynamic MPLS LSPs.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output. The extensive option displays the same information as the detail option, but covers the most recent 50 events.</p> <p>bidirectional unidirectional—(Optional) Display bidirectional or unidirectional LSP information, respectively.</p> <p>bypass—(Optional) Display LSPs used for protecting other LSPs.</p> <p>defaults—(Optional) Display the MPLS LSP default settings.</p> <p>descriptions—(Optional) Display the MPLS label-switched path (LSP) descriptions. To view this information, you must configure the description statement at the [edit protocol mpls lsp] hierarchy level. Only LSPs with a description are displayed. This</p>

command is only valid for the ingress routing device, because the description is not propagated in RSVP messages.

down | up—(Optional) Display only LSPs that are inactive or active, respectively.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

lsp-type—(Optional) Display information about a particular LSP type:

- **bypass**—Sessions for bypass LSPs.
- **egress**—Sessions that terminate on this routing device.
- **ingress**—Sessions that originate from this routing device.
- **transit**—Sessions that pass through this routing device.

name *name*—(Optional) Display information about the specified LSP or group of LSPs.

p2mp—(Optional) Display information about point-to-multipoint LSPs.

statistics—(Optional) (Egress and transit routers only) Display accounting information about LSPs. Statistics are not available for LSPs on the egress routing device, because the penultimate routing device in the LSP sets the label to 0. Also, as the packet arrives at the egress routing device, the hardware removes its MPLS header and the packet reverts to being an IPv4 packet. Therefore, it is counted as an IPv4 packet, not an MPLS packet.

transit—(Optional) Display LSPs transiting this routing device.

Required Privilege Level view

Related Documentation

- [clear mpls lsp on page 647](#)

List of Sample Output [show mpls lsp defaults on page 680](#)
[show mpls lsp descriptions on page 681](#)
[show mpls lsp detail on page 681](#)
[show mpls lsp extensive on page 681](#)
[show mpls lsp ingress extensive on page 682](#)
[show mpls lsp p2mp on page 682](#)
[show mpls lsp p2mp detail on page 683](#)

Output Fields Table 175 on page 675 describes the output fields for the **show mpls lsp** command. Output fields are listed in the approximate order in which they appear.

Table 175: show mpls lsp Output Fields

Field Name	Field Description	Level of Output
Ingress LSP	Information about LSPs on the ingress routing device. Each session has one line of output.	All levels

Table 175: show mpls lsp Output Fields (*continued*)

Field Name	Field Description	Level of Output
Egress LSP	Information about the LSPs on the egress routing device. MPLS learns this information by querying RSVP, which holds all the transit and egress session information. Each session has one line of output.	All levels
Transit LSP	Number of LSPs on the transit routing devices and the state of these paths. MPLS learns this information by querying RSVP, which holds all the transit and egress session information.	All levels
P2MP name	Name of the point-to-multipoint LSP. Dynamically generated P2MP LSPs used for VPLS flooding use dynamically generated P2MP LSP names. The name uses the format <i>identifier:vpls:router-id:routing-instance-name</i> . The <i>identifier</i> is automatically generated by Junos OS.	All levels
P2MP branch count	Number of destination LSPs the point-to-multipoint LSP is transmitting to.	All levels
P	An asterisk (*) under this heading indicates that the LSP is a primary path.	All levels
address	(detail and extensive) Destination (egress routing device) of the LSP.	detail extensive
To	Destination (egress routing device) of the session.	brief
From	Source (ingress routing device) of the session.	brief detail
State	State of the LSP handled by this RSVP session: Up , Dn (down), or Restart .	brief detail
Active Route	Number of active routes (prefixes) installed in the forwarding table. For ingress LSPs, the forwarding table is the primary IPv4 table (inet.0). For transit and egress RSVP sessions, the forwarding table is the primary MPLS table (mpls.0).	detail extensive
P	Path. An asterisk (*) underneath this column indicates that the LSP is a primary path.	brief
LSPname	Name of the LSP.	brief detail
DiffServeInfo	Type of LSP: multiclass LSP (multiclass diffServ-TE LSP) or Differentiated-Services-aware traffic engineering LSP (diffServ-TE LSP).	detail
Bypass	(Bypass LSP) Destination address (egress routing device) for the bypass LSP.	All levels
LSPpath	Indicates whether the RSVP session is for the primary or secondary LSP path. LSPpath can be either primary or secondary and can be displayed on the ingress, egress, and transit routing devices.	detail
Bidir	(GMPLS) The LSP allows data to travel in both directions between GMPLS devices.	All levels
Bidirectional	(GMPLS) The LSP allows data to travel both ways between GMPLS devices.	All levels

Table 175: show mpls lsp Output Fields (*continued*)

Field Name	Field Description	Level of Output
Rt	Number of active routes (prefixes) installed in the routing table. For ingress RSVP sessions, the routing table is the primary IPv4 table (inet.0). For transit and egress RSVP sessions, the routing table is the primary MPLS table (mpls.0).	brief
ActivePath	(Ingress LSP) Name of the active path: Primary or Secondary .	detail extensive
FastReroute desired	Fast reroute has been requested by the ingress routing device.	detail
Link protection desired	Link protection has been requested by the ingress routing device.	detail
LoadBalance	(Ingress LSP) CSPF load-balancing rule that was configured to select the LSP's path among equal-cost paths: Most-fill , Least-fill , or Random .	detail extensive
Signal type	Signal type for GMPLS LSPs. The signal type determines the peak data rate for the LSP: DS0 , DS3 , STS-1 , STM-1 , or STM-4 .	All levels
Encoding type	LSP encoding type: Packet , Ethernet , PDH , SDH/SONET , Lambda , or Fiber .	All levels
Switching type	Type of switching on the links needed for the LSP: Fiber , Lambda , Packet , TDM , or PSC-1 .	All levels
GPID	Generalized Payload Identifier (identifier of the payload carried by an LSP): HDLC , Ethernet , IPv4 , PPP , or Unknown .	All levels
Protection	Configured protection capability desired for the LSP: Extra , Enhanced , none , One plus one , One to one , or Shared .	All levels
Upstream label in	(Bidirectional LSPs) Incoming label for reverse direction traffic for this LSP.	All levels
Upstream label out	(Bidirectional LSPs) Outgoing label for reverse direction traffic for this LSP.	All levels
Suggested label received	(Bidirectional LSPs) Label the upstream node suggests to use in the Resv message that is sent.	All levels
Suggested label sent	(Bidirectional LSPs) Label the downstream node suggests to use in the Resv message that is returned.	All levels
Autobandwidth	(Ingress LSP) The LSP is performing autobandwidth allocation.	detail extensive
MinBW	(Ingress LSP) Configured minimum value of the LSP, in bps.	detail extensive
MaxBW	(Ingress LSP) Configured maximum value of the LSP, in bps.	detail extensive
AdjustTimer	(Ingress LSP) Configured value of the bandwidth adjustment timer, indicating the total amount of time allowed before bandwidth adjustment will take place, in seconds.	detail extensive

Table 175: show mpls lsp Output Fields (*continued*)

Field Name	Field Description	Level of Output
MaxAvgBW util	(Ingress LSP) Current value of the actual maximum average bandwidth utilization, in bps.	detail extensive
Overflow limit	(Ingress LSP) Configured value of the threshold overflow limit.	detail extensive
Overflow sample count	(Ingress LSP) Current value for the overflow sample count.	detail extensive
Bandwidth Adjustment in <i>nnn</i> second(s)	(Ingress LSP) Current value of the bandwidth adjustment timer, indicating the amount of time remaining until the bandwidth adjustment will take place, in seconds.	detail extensive
Active path indicator	(Ingress LSP) A value of * indicates that the path is active. The absence of * indicates that the path is not active. In the following example, "long" is the active path. *Primary long Standby short	detail extensive
Primary	(Ingress LSP) Name of the primary path.	detail extensive
Secondary	(Ingress LSP) Name of the secondary path.	detail extensive
Standby	(Ingress LSP) Name of the path in standby mode.	detail extensive
State	(Ingress LSP) State of the path: Up or Dn (down).	detail extensive
COS	(Ingress LSP) Class-of-service value.	detail extensive
Bandwidth per class	(Ingress LSP) Active bandwidth for the LSP path for each MPLS class type, in bps.	detail extensive
Priorities	(Ingress LSP) Configured value of the setup priority and the reservation priority, where 0 is the highest priority and 7 is the lowest priority.	extensive
OptimizeTimer	(Ingress LSP) Configured value of the optimize timer, indicating the total amount of time allowed before path reoptimization, in seconds.	detail extensive
SmartOptimizeTimer	(Ingress LSP) Configured value of the smart optimize timer, indicating the total amount of time allowed before path reoptimization, in seconds.	detail extensive
Reoptimization in xxx seconds	(Ingress LSP) Current value of the optimize timer, indicating the amount of time remaining until the path will be reoptimized, in seconds.	detail extensive
Computed ERO (S [L] denotes strict [loose] hops)	(Ingress LSP) Computed explicit route. A series of hops, each with an address followed by a hop indicator. The value of the hop indicator can be strict (S) or loose (L).	detail extensive
CSPF metric	(Ingress LSP) Constrained Shortest Path First metric for this path.	detail extensive

Table 175: show mpls lsp Output Fields (*continued*)

Field Name	Field Description	Level of Output
Received RRO	<p>(Ingress LSP) Received record route. A series of hops, each with an address followed by a flag. (In most cases, the received record route is the same as the computed explicit route. If Received RRO is different from Computed ERO, there is a topology change in the network, and the route is taking a detour.) The following flags identify the protection capability and status of the downstream node:</p> <ul style="list-style-type: none"> • 0x01—Local protection available. The link downstream from this node is protected by a local repair mechanism. This flag can be set only if the Local protection flag was set in the SESSION_ATTRIBUTE object of the corresponding Path message. • 0x02—Local protection in use. A local repair mechanism is in use to maintain this tunnel (usually because of an outage of the link it was routed over previously). • 0x03—Combination of 0x01 and 0x02. • 0x04—Bandwidth protection. The downstream routing device has a backup path providing the same bandwidth guarantee as the protected LSP for the protected section. • 0x08—Node protection. The downstream routing device has a backup path providing protection against link and node failure on the corresponding path section. If the downstream routing device can set up only a link-protection backup path, the Local protection available bit is set but the Node protection bit is cleared. • 0x09—Detour is established. Combination of 0x01 and 0x08. • 0x10—Preemption pending. The preempting node sets this flag if a pending preemption is in progress for the traffic engine LSP. This flag indicates to the ingress legacy edge router (LER) of this LSP that it should be rerouted. • 0xb—Detour is in use. Combination of 0x01, 0x02, and 0x08. 	detail extensive
Index number	(Ingress LSP) Log entry number of each LSP path event. The numbers are in chronological descending order, with a maximum of 50 index numbers displayed.	extensive
Date	(Ingress LSP) Date of the LSP event.	extensive
Time	(Ingress LSP) Time of the LSP event.	extensive
Event	(Ingress LSP) Description of the LSP event.	extensive
Created	(Ingress LSP) Date and time the LSP was created.	extensive
Resv style	(Bypass) RSVP reservation style. This field consists of two parts. The first is the number of active reservations. The second is the reservation style, which can be FF (fixed filter), SE (shared explicit), or WF (wildcard filter).	brief detail extensive
Labelin	Incoming label for this LSP.	brief detail
Labelout	Outgoing label for this LSP.	brief detail
LSPname	Name of the LSP.	brief detail

Table 175: show mpls lsp Output Fields (*continued*)

Field Name	Field Description	Level of Output
Time left	Number of seconds remaining in the lifetime of the reservation.	detail
Since	Date and time when the RSVP session was initiated.	detail
Tspec	Sender's traffic specification, which describes the sender's traffic parameters.	detail
Port number	Protocol ID and sender or receiver port used in this RSVP session.	detail
PATH rcvfrom	Address of the previous-hop (upstream) routing device or client, interface the neighbor used to reach this router, and number of packets received from the upstream neighbor.	detail
PATH sentto	Address of the next-hop (downstream) routing device or client, interface used to reach this neighbor, and number of packets sent to the downstream routing device.	detail
RESV rcvfrom	Address of the previous-hop (upstream) routing device or client, interface the neighbor used to reach this routing device, and number of packets received from the upstream neighbor. The output in this field, which is consistent with that in the PATH rcvfrom field, indicates that the RSVP negotiation is complete.	detail
Record route	Recorded route for the session, taken from the record route object.	detail
Soft preempt	Number of soft preemptions that occurred on a path and when the last soft preemption occurred. Only successful soft preemptions are counted (those that actually resulted in a new path being used).	detail
Soft preemption pending	Path is in the process of being soft preempted. This display is removed once the ingress router has calculated a new path.	detail
MPLS-TE LSP Defaults	Default settings for MPLS traffic engineered LSPs: <ul style="list-style-type: none"> • LSP Holding Priority—Determines the degree to which an LSP holds on to its session reservation after the LSP has been set up successfully. • LSP Setup Priority—Determines whether a new LSP that preempts an existing LSP can be established. • Hop Limit—Specifies the maximum number of routers the LSP can traverse (including the ingress and egress). • Bandwidth—Specifies the bandwidth in bits per second for the LSP. • LSP Retry Timer—Length of time in seconds that the ingress router waits between attempts to establish the primary path. 	defaults

```

show mpls lsp defaults  user@host> show mpls lsp defaults
                        MPLS-TE LSP Defaults
                        LSP Holding Priority    0
                        LSP Setup Priority      7
                        Hop Limit              255

```

```

Bandwidth                                0
LSP Retry Timer                          30 seconds

show mpls lsp descriptions user@host> show mpls lsp descriptions
Ingress LSP: 3 sessions
To      LSP name      Description
10.0.0.195 to-sanjose    to-sanjose-desc
10.0.0.195 to-sanjose-other-desc other-desc
Total 2 displayed, Up 2, Down 0

show mpls lsp detail user@host> show mpls lsp detail
Ingress LSP: 1 sessions

10.255.245.3
  From: 10.255.245.5, State: Up, ActiveRoute: 1, LSPname: lsp-ec
  ActivePath: long-path (primary)
  LoadBalance: Random
  Autobandwidth
  MaxBW: 5Mbps
  AdjustTimer: 4800 secs AdjustThreshold: 1%
  Max AvgBW util: 0bps, Bandwidth Adjustment in 3383 second(s).
  Overflow limit: 5, Overflow sample count: 0
  Encoding type: Packet, Switching type: Packet, GPID: IPv4
  *Primary long-path State: Up
    SmartOptimizeTimer: 180
    Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 5)
    192.168.37.89 S 192.168.37.87 S
    Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt):
      192.168.37.89 192.168.37.87
Total 1 displayed, Up 1, Down 0

Egress LSP: 0 sessions
Total 0 displayed, Up 0, Down 0

show mpls lsp extensive user@host> show mpls lsp extensive
Ingress LSP: 1 sessions

50.0.0.1
  From: 10.0.0.1, State: Up, ActiveRoute: 0, LSPname: test
  ActivePath: (primary)
  LSPtype: Static Configured
  LoadBalance: Random
  Encoding type: Packet, Switching type: Packet, GPID: IPv4
  *Primary State: Up
    Priorities: 7 0
    OptimizeTimer: 300
    SmartOptimizeTimer: 180
    Reoptimization in 255 second(s).
    Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 2)
    2.2.2.2 S 3.3.3.2 S
    Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt
    20=Node-ID):
      2.2.2.2 3.3.3.2
    7 Aug 3 12:39:52.834 CSPF: computation result ignored, new path no benefit

    6 Aug 3 12:35:03.830 Selected as active path
    5 Aug 3 12:35:03.828 Record Route: 2.2.2.2 3.3.3.2
    4 Aug 3 12:35:03.827 Up
    3 Aug 3 12:35:03.814 Originate Call

```

```

      2 Aug 3 12:35:03.814 CSPF: computation result accepted 2.2.2.2 3.3.3.2
      1 Aug 3 12:34:34.921 CSPF failed: no route toward 50.0.0.1
Created: Tue Aug 3 12:34:34 2010
Total 1 displayed, Up 1, Down 0

```

```

Egress LSP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

```

Transit LSP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

show mpls lsp ingress extensive

```

user@host> show mpls lsp ingress extensive
Ingress LSP: 1 sessions

50.0.0.1
  From: 10.0.0.1, State: Up, ActiveRoute: 0, LSPname: test
  ActivePath: (primary)
  LSPtype: Static Configured
  LoadBalance: Random
  Encoding type: Packet, Switching type: Packet, GPID: IPv4
  *Primary State: Up
    Priorities: 7 0
    OptimizeTimer: 300
    SmartOptimizeTimer: 180
    Reoptimization in 240 second(s).
    Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 3)
1.1.1.2 S 4.4.4.1 S 5.5.5.2 S
  Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt
20=Node-ID):
    1.1.1.2 4.4.4.1 5.5.5.2
  17 Aug 3 13:17:33.601 CSPF: computation result ignored, new path less avail
bw[3 times]
  16 Aug 3 13:02:51.283 CSPF: computation result ignored, new path no benefit[2
times]
  15 Aug 3 12:54:36.678 Selected as active path
  14 Aug 3 12:54:36.676 Record Route: 1.1.1.2 4.4.4.1 5.5.5.2
  13 Aug 3 12:54:36.676 Up
  12 Aug 3 12:54:33.924 Deselected as active
  11 Aug 3 12:54:33.924 Originate Call
  10 Aug 3 12:54:33.923 Clear Call
  9 Aug 3 12:54:33.923 CSPF: computation result accepted 1.1.1.2 4.4.4.1
5.5.5.2
  8 Aug 3 12:54:33.922 2.2.2.2: No Route toward dest
  7 Aug 3 12:54:28.177 CSPF: computation result ignored, new path no benefit[4
times]
  6 Aug 3 12:35:03.830 Selected as active path
  5 Aug 3 12:35:03.828 Record Route: 2.2.2.2 3.3.3.2
  4 Aug 3 12:35:03.827 Up
  3 Aug 3 12:35:03.814 Originate Call
  2 Aug 3 12:35:03.814 CSPF: computation result accepted 2.2.2.2 3.3.3.2
  1 Aug 3 12:34:34.921 CSPF failed: no route toward 50.0.0.1
Created: Tue Aug 3 12:34:35 2010
Total 1 displayed, Up 1, Down 0

```

show mpls lsp p2mp

```

user@host> show mpls lsp p2mp
Ingress LSP: 2 sessions
P2MP name: p2mp-lsp1, P2MP branch count: 1
To          From          State Rt ActivePath      P      LSPname
10.255.245.51 10.255.245.50 Up    0 path1         *      p2mp-branch-1
P2MP name: p2mp-lsp2, P2MP branch count: 1
To          From          State Rt ActivePath      P      LSPname

```



```

10.255.245.51 10.255.245.50 Up 0 path1 * p2mp-st-br1
Total 2 displayed, Up 2, Down 0

```

```

Egress LSP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

```

Transit LSP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

**show mpls lsp p2mp
detail**

```

user@host> show mpls lsp p2mp detail

```

```

Ingress LSP: 2 sessions

```

```

P2MP name: p2mp-lsp1, P2MP branch count: 1

```

```

10.255.245.51

```

```

  From: 10.255.245.50, State: Up, ActiveRoute: 0, LSPname: p2mp-branch-1

```

```

  ActivePath: path1 (primary)

```

```

  P2MP name: p2mp-lsp1

```

```

  LoadBalance: Random

```

```

  Encoding type: Packet, Switching type: Packet, GPID: IPv4

```

```

  *Primary path1 State: Up

```

```

    Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 25)

```

```

  192.168.208.17 S

```

```

    Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt):

```

```

      192.168.208.17

```

```

P2MP name: p2mp-lsp2, P2MP branch count: 1

```

```

10.255.245.51

```

```

  From: 10.255.245.50, State: Up, ActiveRoute: 0, LSPname: p2mp-st-br1

```

```

  ActivePath: path1 (primary)

```

```

  P2MP name: p2mp-lsp2

```

```

  LoadBalance: Random

```

```

  Encoding type: Packet, Switching type: Packet, GPID: IPv4

```

```

  *Primary path1 State: Up

```

```

    Computed ERO (S [L] denotes strict [loose] hops): (CSPF metric: 25)

```

```

  192.168.208.17 S

```

```

    Received RRO (ProtectionFlag 1=Available 2=InUse 4=B/W 8=Node 10=SoftPreempt):

```

```

      192.168.208.17

```

```

Total 2 displayed, Up 2, Down 0

```

show mpls path

Syntax	show mpls path <logical-system (all <i>logical-system-name</i>)> < <i>path-name</i> >
Syntax (EX Series Switch)	show mpls path < <i>path-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display dynamic Multiprotocol Label Switching (MPLS) label-switched paths (LSPs).
Options	none—Display standard information about all MPLS LSPs. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system. <i>path-name</i> —(Optional) Display information about the specified LSP only.
Required Privilege Level	view
List of Sample Output	show mpls path on page 684
Output Fields	Table 176 on page 684 describes the output fields for the show mpls path command. Output fields are listed in the approximate order in which they appear.

Table 176: show mpls path Output Fields

Field Name	Field Description
Path name	Information about ingress LSPs. Each path has one line of output.
Address	Addresses of the routing devices that form the LSP.
Strict/loose address	Whether the address is configured as a strict or loose address.

```

show mpls path
user@host> show mpls path
Path name      Address      Strict/loose address
p1             123.456.55.6 Strict
               123.456.1.6  Loose
p2             191.456.1.4  Strict

```

show mpls static-lsp

Syntax show mpls static-lsp
 <brief | detail | extensive | terse>
 <bypass>
 <descriptions>
 <down | up>
 <ingress>
 <logical-system (all | *logical-system-name*)>
 <lsp-type>
 <name *name*>
 <statistics>
 <transit>

Release Information Command introduced in Junos OS Release 10.1.

Description Display information about configured and active static Multiprotocol Label Switching (MPLS) label-switched paths (LSPs).

Options none—Display standard information about all configured and active static MPLS LSPs.

brief | detail | extensive | terse—(Optional) Display the specified level of output. The **extensive** option displays the same information as the **detail** option, but covers the most recent 50 events.

bypass—(Optional) Display LSPs used for protecting other static LSPs.

descriptions—(Optional) Display the MPLS static LSP descriptions. To view this information, you must configure the description statement at the **[edit protocols mpls static-label-switched-path *path-name* bypass]**, **[edit protocols mpls static-label-switched-path *path-name* ingress]**, or **[edit protocols mpls static-label-switched-path *path-name* transit *incoming-label*]** hierarchy levels. Only static LSPs with a description are displayed.

down | up—(Optional) Display only static LSPs that are inactive or active, respectively.

logical-system (all | *logical-system-name*)—(Optional) Perform this operation on all logical systems or on a particular logical system.

lsp-type—(Optional) Display information about a particular LSP type:

- **bypass**—Sessions for bypass LSPs.
- **ingress**—Sessions that originate from this routing device.
- **transit**—Sessions that pass through this routing device.

name *name*—(Optional) Display information about the specified static LSP or group of LSPs.

statistics—(Optional) Display accounting information about static LSPs.

transit—(Optional) Display static LSPs transiting this routing device.

Required Privilege Level view

List of Sample Output `show mpls static-lsp` extensive on page 687
`show mpls static-lsp statistics ingress` on page 687

Output Fields Table 177 on page 686 describes the output fields for the `show mpls static-lsp` command. Output fields are listed in the approximate order in which they appear.

Table 177: show mpls static-lsp Output Fields

Field Name	Field Description	Level of Output
Ingress LSPs	Information about the static LSPs on the ingress routing device. Each session has one line of output.	All levels
Transit LSPs	Number of static LSPs on the transit routing devices and the state of these paths. MPLS learns this information by querying RSVP, which holds all the transit and egress session information.	All levels
Bypass LSPs	Information about the bypass LSPs configured on the routing device. Each session has one line of output.	All levels
LSPname	Name of the static LSP.	All levels
To	Destination (egress routing device) of the session.	All levels
State	State of the static LSP handled by this RSVP session: Up , Dn (down), or Restart .	All levels
Packets	Number of packet transiting the static LSP (statistics option only).	All levels
Bytes	Number of bytes transiting the static LSP (statistics option only).	All levels
Nexthop	IP address for the next-hop router for the static LSP.	detail, extensive
Bypass	(Bypass LSP) Destination address (egress routing device) for the bypass LSP.	All levels
Link protection desired	Link protection has been requested by the ingress routing device.	detail, extensive
LabelOperation	Label operation to perform: Push , Pop , Swap .	detail, extensive
Outgoing-label	Outgoing label to use for the MPLS packet in either push or swap label operations.	detail, extensive
Created	(Ingress LSP) Date and time the static LSP was created.	extensive
Bandwidth	Bandwidth configured for the static LSP.	detail, extensive
Resv style	(Bypass) RSVP reservation style. This field consists of two parts: the number of active reservations and the reservation style, which can be FF (fixed filter), SE (shared explicit), or WF (wildcard filter).	All levels

```
show mpls static-lsp extensive
user@host> show mpls static-lsp extensive
Ingress LSPs:
LSPname: alpha-to-beta, To: 192.168.14.1
State: Dn
Nexthop: 192.168.10.1
LabelOperation: Push, Outgoing-label: 1000001
Created: Thu Jan 14 16:44:43 2010
Bandwidth: 0 bps
Total 1, displayed 1, Up 0, Down 1

Transit LSPs:
Total 0, displayed 0, Up 0, Down 0

Bypass LSPs:
Total 0, displayed 0, Up 0, Down 0
```

```
show mpls static-lsp statistics ingress
user@host> show mpls static-lsp statistics ingress
Ingress LSPs:
LSPname           To           State      Packets      Bytes
alpha-to-beta     192.168.14.1 Dn         NA           NA
Total 1, displayed 1, Up 0, Down 1
```

show ted database

Syntax	show ted database <brief detail extensive> <logical-system (all <i>logical-system-name</i>)> < <i>system-name</i> >
Syntax (EX Series Switch)	show ted database <brief detail extensive> < <i>system-name</i> >
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display the entries in the Multiprotocol Label Switching (MPLS) traffic engineering database.
Options	<p>none—Display standard information about all entries in the traffic engineering database.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>system-name</i>—(Optional) Display traffic engineering database information for a particular system.</p>
Required Privilege Level	view
List of Sample Output	<p>show ted database brief on page 690</p> <p>show ted database detail <i>system-name</i> on page 691</p> <p>show ted database extensive on page 691</p>
Output Fields	Table 178 on page 688 describes the output fields for the show ted database command. Output fields are listed in the approximate order in which they appear.

Table 178: show ted database Output Fields

Field Name	Field Description	Level of Output
TED database	Number of nodes and pseudonodes participating in IS-IS and OSPF domain routing.	All levels
ID	Hostname and address of the node that the link is coming from. An address of .00 indicates that the node is the routing device itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode. If the node contains a router ID, it is displayed in parentheses.	brief
NodeID	Hostname and address of the node that the link is coming from. An address of .00 indicates that the node is the routing device itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	extensive

Table 178: show ted database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Type	Type of node. It can be either Rtr (router) or Net (pseudonode).	All levels
Age(s)	How long since the node was last refreshed, in seconds.	All levels
LnkIn	Number of nodes pointing toward this node.	All levels
LnkOut	Number of nodes to which this node points.	All levels
Protocol	Protocol that reported the node information: <ul style="list-style-type: none"> • IS-IS(1)—IS-IS Level 1. • IS-IS(2)—IS-IS Level 2. • OSPF (area-number)—OSPF from the specified area. 	All levels
To	Address on the far end of a link.	detail extensive
Local	Address of the local interface being used to reach the remote node.	detail extensive
Remote	Address of the interface on the remote node.	detail extensive
Metric	Configured traffic engineering metric.	extensive
Static BW	Total interface bandwidth in bps.	extensive
Reservable bandwidth	Subscription factor for the interface, which is the percentage of the link bandwidth that can be used for the RSVP reservation process. You configure this by including the subscription statement when configuring RSVP.	extensive
Available BW [priority]	(Must include diffserv-te statement when configuring LSPs) Amount of bandwidth actually reserved by RSVP for each priority level. The bandwidth shown is for the entire interface, not for each individual LSP.	extensive
Diffserv-TE BW Model	Bandwidth constraint model used by the LSPs.	extensive
Available BW [TE-class]	(Must include the diffserv-te statement when configuring LSPs) Amount of bandwidth actually reserved by RSVP for each traffic engineering class.	extensive
Static BW [CT-class]	Total interface bandwidth used by an MPLS traffic class, in bps.	extensive

Table 178: show ted database Output Fields (*continued*)

Field Name	Field Description	Level of Output
Interface Switching Capability Descriptor (n)	<p>Information about the interface switching capability descriptor, which is a subtype length value (TLV) of the link TLV. <i>n</i> is the index number.</p> <ul style="list-style-type: none"> • Switching type—Type of switching to be performed on a particular link: <ul style="list-style-type: none"> • PSC-1—Packet switch-capable 1 • PSC-2—Packet switch-capable 2 • PSC-3—Packet switch-capable 3 • PSC-4—Packet switch-capable 4 • L2SC—Layer-2-switch-capable • TDM—Time-division-multiplexing-capable • LSC—Lambda switch-capable • FSC—Fiber switch-capable • Encoding type—Encoding of the LSP being requested: <ul style="list-style-type: none"> • Packet • Ethernet • ANSI/ETSI PDH • Reserved • SDH /SONET • Digital Wrapper • Lambda (photonic) • Fiber • FiberSDH/SONET • Maximum LSP BW [priority] bps—Maximum LSP bandwidth information. Amount of bandwidth actually reserved for each priority level. The bandwidth shown is for the entire interface. <ul style="list-style-type: none"> • [n]—Priority level. The range is from 0 (high) through 7 (low). • n Mbps—Amount of the maximum bandwidth. • Minimum LSP BW—Minimum LSP bandwidth in Mbps. Amount of bandwidth actually reserved for each priority level. The bandwidth shown is for the entire interface. Minimum LSP BW is displayed only when switching type is PSC-1 or TDM. • Interface MTU—Displayed only when switching type is TDM. • Interface supports standard SONET/SDH—Displayed only when switching type is TDM. 	extensive

```

show ted database user@host> show ted database brief
brief
TED database: 6 ISIS nodes 6 INET nodes
ID                               Type Age(s) LnkIn LnkOut Protocol
cheviot.00(123.456.1.10)         Rtr   383     1     1 IS-IS(2) IS-IS(1)
corriedale.00(123.456.1.11)      Rtr    36     2     0 IS-IS(2) IS-IS(1)
wolff.00(123.456.1.12)          Rtr   399     0     0 IS-IS(2) IS-IS(1)
perendale.00(123.456.1.13)       Rtr   385     2     0 IS-IS(2) IS-IS(1)
merino.00(123.456.1.14)         Rtr   379     1     3 IS-IS(2) IS-IS(1)
romney.00(123.456.1.15)         Rtr   427     0     2 IS-IS(2) IS-IS(1)

```



```

show ted database      user@host> show ted database detail merino
detail system-name    TED database: 6 ISIS nodes 6 INET nodes
                        NodeID: merino.00(123.456.1.14)
                        Type: Rtr, Age: 507 secs, LinkIn: 1, LinkOut: 3
                        Protocol: IS-IS(2)
                        To: corriedale.00(123.456.1.11), Local: 123.456.8.206, Remote: 123.456.8.207

                        To: perendale.00(123.456.1.13), Local: 123.456.8.204, Remote: 123.456.8.205
                        To: cheviot.00(123.456.1.10), Local: 123.456.10.65, Remote: 123.456.10.66
                        Protocol: IS-IS(1)
                        To: corriedale.00(123.456.1.11), Local: 123.456.8.206, Remote: 123.456.8.207

                        To: perendale.00(123.456.1.13), Local: 123.456.8.204, Remote: 123.456.8.205
                        To: cheviot.00(123.456.1.10), Local: 123.456.10.65, Remote: 123.456.10.66

show ted database      user@host> show ted database extensive
extensive             TED database: 0 ISIS nodes 2 INET nodes
                        NodeID: 10.255.245.196
                        Type: Rtr, Age: 46 secs, LinkIn: 1, LinkOut: 1
                        Protocol: OSPF(0.0.0.0)
                        To: 10.255.245.24, Local: 4.4.4.4, Remote: 5.5.5.5
                        Metric: 1
                        Static BW: 155.52Mbps
                        Reservable BW: 155.52Mbps
                        Available BW [TE-class] bps:
                        [te0] 155.52Mbps   [te1] 155.52Mbps   [te2] 155.52Mbps   [te3] 155.52Mbps

                        [te4] 155.52Mbps   [te5] 155.52Mbps   [te6] 155.52Mbps   [te7] 155.52Mbps

                        Diffserv-TE BW model: Maximum allocation model
                        Static BW [CT-class] bps:
                        [ct0] 155.52Mbps   [ct1] 155.52Mbps   [ct2] 155.52Mbps   [ct3] 155.52Mbps

                        Interface Switching Capability Descriptor(1):
                        Switching type: PSC-1
                        Encoding type: SDH/SONET
                        Maximum LSP BW [priority] bps:
                        [0] 155.52Mbps   [1] 155.52Mbps   [2] 155.52Mbps   [3] 155.52Mbps
                        [4] 155.52Mbps   [5] 155.52Mbps   [6] 155.52Mbps   [7] 155.52Mbps
                        Minimum LSP BW: 155.52Mbps
                        Interface MTU: 1285
                        Interface Switching Capability Descriptor(2):
                        Switching type: TDM
                        Encoding type: SDH/SONET
                        Maximum LSP BW [priority] bps:
                        [0] 155.52Mbps   [1] 155.52Mbps   [2] 155.52Mbps   [3] 155.52Mbps
                        [4] 155.52Mbps   [5] 155.52Mbps   [6] 155.52Mbps   [7] 155.52Mbps
                        Minimum LSP BW: 155.52Mbps
                        Interface supports standard SONET/SDH

```

show ted link

Syntax	show ted link <brief detail> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show ted link <brief detail>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Multiprotocol Label Switching (MPLS) traffic engineering database link information.
Options	none—Display standard information about traffic engineering database link information. brief detail—(Optional) Display the specified level of output. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show ted link brief on page 693 show ted link detail on page 693
Output Fields	Table 179 on page 692 describes the output fields for the show ted link command. Output fields are listed in the approximate order in which they appear.

Table 179: show ted link Output Fields

Field Name	Field Description	Level of Output
ID	Hostname and address of the node that the link is coming from. An address of .00 indicates that the node is the routing device itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	brief
-->ID	Hostname and address of the node that the link is going to. An address of .00 indicates that the node is the routing device itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	brief
<i>hostname</i>	Hostname and address of the node that the link is coming from. An address of .00 indicates that the node is the routing device itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	detail
<i>hostname</i>	Hostname and address of the node that the link is going to. An address of .00 indicates that the node is the routing device itself. An address in the range 0.01 through 0.FF indicates that the node is a pseudonode.	detail
Local Path	Number of paths CSPF on the local routing device has placed on the link.	All levels

Table 179: show ted link Output Fields (*continued*)

Field Name	Field Description	Level of Output
Local BW	Amount of bandwidth the local routing device has placed on the link.	All levels

```

show ted link brief  user@host> show ted link brief
TED link:
ID                               ->ID                               LocalPath LocalBW
cheviot.00(123.456.1.10)        merino.00(123.456.1.14)          0 0bps
merino.00(123.456.1.14)        corriedale.00(123.456.1.11)      0 0bps
merino.00(123.456.1.14)        perendale.00(123.456.1.13)       0 0bps
merino.00(123.456.1.14)        cheviot.00(123.456.1.10)         0 0bps
romney.00(123.456.1.15)        corriedale.00(123.456.1.11)      0 0bps
romney.00(123.456.1.15)        perendale.00(123.456.1.13)       0 0bps

```

```

show ted link detail user@host> show ted link detail
TED link:
cheviot.00(123.456.1.10)->merino.00(123.456.1.14), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps
merino.00(123.456.1.14)->corriedale.00(123.456.1.11), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps
merino.00(123.456.1.14)->perendale.00(123.456.1.13), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps
merino.00(123.456.1.14)->cheviot.00(123.456.1.10), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps
romney.00(123.456.1.15)->corriedale.00(123.456.1.11), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps
romney.00(123.456.1.15)->perendale.00(123.456.1.13), LocalPath 0
  localBW [0] 0bps      [1] 0bps      [2] 0bps      [3] 0bps
  localBW [4] 0bps      [5] 0bps      [6] 0bps      [7] 0bps

```

show ted protocol

Syntax	show ted protocol <brief detail> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show ted protocol <brief detail>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about the protocols from which the Multiprotocol Label Switching (MPLS) traffic engineering database learned about its nodes.
Options	none—Display standard information about the protocols from which the traffic engineering database learned about its nodes. brief detail—(Optional) Display the specified level of output. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show ted protocol on page 694
Output Fields	Table 180 on page 694 describes the output fields for the show ted protocol command. Output fields are listed in the approximate order in which they appear.

Table 180: show ted protocol Output Fields

Field Name	Field Description
Protocol name	Protocol that reported the node information: <ul style="list-style-type: none"> IS-IS(1)—IS-IS Level 1. IS-IS(2)—IS-IS Level 2. OSPF (<i>area-number</i>)—OSPF from the specified area.
Credibility	If the protocols provide conflicting information about a node, the protocol with the highest credibility value is the one that the traffic engineering database uses.
Self node	Address the protocol uses as the local address.

```

show ted protocol  user@host> show ted protocol
Protocol name      Credibility Self node
IS-IS(2)           2 (highest) corriedale.00(123.456.1.11)
IS-IS(1)           1           corriedale.00(123.456.1.11)

```

RSVP Operational Mode Commands

Table 181 on page 695 summarizes the command-line interface (CLI) commands you can use to monitor Resource Reservation Protocol (RSVP) sessions. Commands are listed in alphabetical order.

Table 181: RSVP Operational Mode Commands

Task	Command
Clear RSVP sessions and trigger fast reroute optimization.	clear rsvp session
Clear RSVP packet and error counters.	clear ripng statistics
Display the status of interfaces on which RSVP is running.	show rsvp interface
Display RSVP neighbors.	show rsvp neighbor
Display currently active RSVP sessions.	show rsvp session
Display RSVP packet and error counters.	show rsvp statistics
Display RSVP version and configuration information.	show rsvp version



NOTE: For more RSVP-related commands, such as `show route protocol`, `show route instance`, and `show route table`, see *Protocol-Independent Routing Operational Mode Commands*.

For information about the `monitor label-switched path` command, used to monitor an RSVP LSP in real time, see the *Junos System Basics and Services Command Reference*.

For information about how to configure RSVP, see the *Junos MPLS Applications Configuration Guide*.

clear rsvp session

Syntax	<pre>clear rsvp session <connection-source address> <connection-destination address> <gracefully> <logical-system (all logical-system-name)> <lsp-id identifier> <name name> <optimize-fast-reroute> <tunnel-id identifier></pre>
Syntax (EX Series Switch)	<pre>clear rsvp session <connection-source address> <connection-destination address> <gracefully> <lsp-id identifier> <name name> <optimize-fast-reroute> <tunnel-id identifier></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	Reset and restart Resource Reservation Protocol (RSVP) sessions.
Options	<p>none—Reset and restart all RSVP sessions for which this routing device is the ingress, transit, or egress routing device.</p> <p>connection-source <i>address</i>—(Optional) Source address for GMPLS and MPLS LSPs from the RSVP sender template.</p> <p>connection-destination <i>address</i>—(Optional) Destination address for GMPLS and MPLS LSPs from the RSVP sender template.</p> <p>gracefully—(Optional) Gracefully reset an RSVP session for a nonpacket LSP in two passes. In the first pass, the Admin-Status object is signaled along the path to the other endpoint of the RSVP session. In the second pass, the path used by the RSVP session is torn down. This option can only be used on the ingress or egress routing device of the RSVP session and is only valid for nonpacket LSPs.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>lsp-id <i>identifier</i>—(Optional) LSP identifier (source port) for the RSVP sender template.</p> <p>name <i>name</i>—(Optional) Reset and restart the specified RSVP session.</p> <p>optimize-fast-reroute—(Optional) Begin fast reroute optimization.</p> <p>tunnel-id <i>identifier</i>—(Optional) Tunnel identifier (destination port) for the RSVP session.</p>

Required Privilege Level clear

Related Documentation

- [clear mpls lsp on page 647](#)
- [show rsvp session on page 709](#)

List of Sample Output clear rsvp session on page 697

Output Fields When you enter this command, you are provided feedback on the status of your request.

clear rsvp session user@host> clear rsvp session

clear rsvp statistics

Syntax	clear rsvp statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	clear rsvp statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Clear Resource Reservation Protocol (RSVP) packet and error statistics.
Options	none—Clear RSVP packet and error statistics. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none">• show rsvp statistics on page 717
List of Sample Output	clear rsvp statistics on page 698
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear rsvp statistics	user@host> clear rsvp statistics

show rsvp interface

Syntax	show rsvp interface <brief detail extensive> <link-management> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show rsvp interface <brief detail extensive> <link-management>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display the status of Resource Reservation Protocol (RSVP)-enabled interfaces and packet statistics.
Options	<p>none—Display standard information about the status of RSVP-enabled interfaces and packet statistics.</p> <p>brief detail extensive link-management—(Optional) Display the specified level of output.</p> <p>link-management—(Optional) Use the link-management option to display the control peers and corresponding TE-link information created by the Link Management Protocol (LMP).</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show rsvp interface brief on page 702</p> <p>show rsvp interface detail on page 702</p> <p>show rsvp interface extensive on page 702</p> <p>show rsvp interface link-management on page 703</p>
Output Fields	Table 182 on page 699 lists the output fields for the show rsvp interface command. Output fields are listed in the approximate order in which they appear.

Table 182: show rsvp interface Output Fields

Field Name	Field Description	Level of Output
RSVP interface	Number of interfaces on which RSVP is active. Each interface has one line of output.	All levels
Interface	Name of the interface.	All levels
Index	Index of the interface.	detail

Table 182: show rsvp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
State	State of the interface. <ul style="list-style-type: none"> • Disabled—No traffic engineering information is displayed. • Down—Interface is not operational. • Enabled—Displays traffic engineering information. • Up—Interface is operational. 	All levels
NoAuthentication	Interface does not support RSVP authentication.	detail
NoAggregate	Interface does not support refresh reduction.	detail
NoReliable	Interface does not support refresh reduction message ID extension.	detail
NoLinkProtection	Interface does not support link protection.	detail
HelloInterval	Frequency at which RSVP hellos are sent on this interface (in seconds).	detail
Address	IP address of the local interface.	detail
Active control channel	Next-hop link address to transmit messages.	None specified
TElink	Traffic-engineered links that are managed by the peer they are associated with.	None specified
Active resv	Number of reservations that are actively reserving bandwidth on the interface.	All levels
PreemptionCnt	Number of times an RSVP session was preempted on this interface.	detail
Update threshold	Percentage change in reserved bandwidth to trigger an IGP update.	detail
Subscription	User-configured subscription factor.	All levels
bc number	Bandwidth allocated for the specified bandwidth constraint.	extensive
ct number	Bandwidth allocated for the specified class type.	extensive
Static BW	Total interface bandwidth, in bps.	All levels
Available BW	Amount of bandwidth that RSVP is allowed to reserve, in bps. It is equal to (static bandwidth * subscription factor).	all levels
Reserved BW	Currently reserved bandwidth, in bps.	All levels
SoftPreemptionCnt	Number of times a soft preemption occurred on this interface. This number is not included in the PreemptionCnt value.	detail
Overbooked BW	Currently overbooked bandwidth, in bps, by class type (ct0 through ct3).	detail

Table 182: show rsvp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
Highwater mark	Highest bandwidth that has ever been reserved on this interface, in bps.	brief
PacketType	Type of RSVP packet.	detail
Total Sent	Total number of packets sent.	detail
Total Received	Total number of packets received since RSVP was enabled.	detail
Last 5 seconds Sent	Number of packets sent in the last 5 seconds.	detail
Last 5 seconds Received	Number of packets received in the last 5 seconds.	detail
Path	Statistics about Path messages, which are sent from the RSVP sender along the data paths and store path state information in each node along the path.	detail
PathErr	Statistics about PathErr messages, which are advisory messages that are sent upstream to the sender.	detail
PathTear	Statistics about PathTear messages, which remove path states and dependent reservation states in any routers along a path.	detail
Resv	Statistics about Resv messages, which are sent from the RSVP receiver along the data paths and store reservation state information in each node along the path.	detail
ResvErr	Statistics about ResvErr messages, which are advisory messages that are sent when an attempt to establish a reservation fails.	detail
ResvTear	Statistics about ResvTear messages, which remove reservation states along a path.	detail
Hello	Number of RSVP hello packets that have been sent to and received from the neighbor.	detail
Ack	Acknowledge message for refresh reductions.	detail
Srefresh	Summary refresh messages.	detail
EndtoEnd RSVP	Statistics for the number of end-to-end RSVP messages sent.	detail
Queue	CoS transmit queue number and its associated forwarding class designation.	extensive
TxRate	Configured bandwidth in Mbps and configured bandwidth as a percentage of the specified queue.	extensive
Priority	Weight of the queue relative to other configured queues, in percentage.	extensive

Table 182: show rsvp interface Output Fields (*continued*)

Field Name	Field Description	Level of Output
queue-priority-value	Low, High, None, or Exact. None indicates no rate limiting. Exact indicates the queue transmits at the configured rate only.	extensive
show rsvp interface brief	<pre>user@host> show rsvp interface brief RSVP interface: 1 active Active Subscr- Static Available Reserved Highwater Interface State resv iption BW BW BW mark de0.0 Up 1 23% 10Mbps 989.992kbps 1.31Mbps 1.31Mbps</pre>	
show rsvp interface detail	<pre>user@host> show rsvp interface detail so-0/1/1.0 Index 6, State: Ena/Up NoAuthentication, NoAggregate, NoReliable, NoLinkProtection HelloInterval 3(second) Address 192.168.207.29, 10.255.245.194 ActiveResv 0, PreemptionCnt 0, Update threshold 10% Subscription 100%, StaticBW 155.52Mbps, AvailableBW 155.52Mbps ReservedBW [0] 155Mbps[1] 0bps[2] 0bps[3] 0bps[4] 0bps[5] 0bps[6] 0bps[7] 0bps SoftPreemptionCnt1 OverbookedBW [0] 0bps[1] 0bps[2] 0bps[3] 0bps[4] 155Mbps[5] 0bps[6] 0bps[7] 0bps PacketType Total Last 5 seconds Sent Received Sent Received Path 16 0 1 0 PathErr 0 0 0 0 PathTear 1 0 0 0 Resv 0 11 0 1 ResvErr 0 0 0 0 ResvTear 0 0 0 0 Hello 66 67 1 1 Ack 0 0 0 0 Srefresh 0 0 0 0 EndtoEnd RSVP 0 0 0 0 ...</pre>	
show rsvp interface extensive	<pre>user@host> show rsvp interface extensive so-1/0/0.0 Index 72, State Ena/Up NoAuthentication, NoAggregate, NoReliable, NoLinkProtection HelloInterval 9(second) Address 192.168.213.22, 10.255.240.175 ActiveResv 1, PreemptionCnt 0, Update threshold 10% Subscription 100%, bc0 = (ct0+ct1+ct2+ct3), StaticBW 622.08Mbps bc1 = (ct1+ct2+ct3), StaticBW 466.56Mbps bc2 = (ct2+ct3), StaticBW 311.04Mbps bc3 = ct3, StaticBW 155.52Mbps ct0: StaticBW 155.52Mbps, AvailableBW 522.08Mbps ReservedBW [0] 0bps[1] 0bps[2] 0bps[3] 0bps[4] 0bps[5] 0bps[6] 0bps[7] 0bps ct1: StaticBW 155.52Mbps, AvailableBW 366.56Mbps ReservedBW [0] 100Mbps[1] 0bps[2] 0bps[3] 0bps[4] 0bps[5] 0bps[6] 0bps[7] 0bps ct2: StaticBW 155.52Mbps, AvailableBW 311.04Mbps ReservedBW [0] 0bps[1] 0bps[2] 0bps[3] 0bps[4] 0bps[5] 0bps[6] 0bps[7] 0bps ct3: StaticBW 155.52Mbps, AvailableBW 155.52Mbps ReservedBW [0] 0bps[1] 0bps[2] 0bps[3] 0bps[4] 0bps[5] 0bps[6] 0bps[7] 0bps Queue TxRate Priority Exact 0 155.52Mbps 25% Low</pre>	

1	155.52Mbps	25%	Low
2	155.52Mbps	25%	Low
3	155.52Mbps	25%	Low

```

show rsvp interface link-management user@host> show rsvp interface link-management
link-management                    RSVP interface: 2 active
                                   PEER-C State: Up
                                   Active Control Channel: so-0/1/0.0

                                   TElink: TElnk1, Link ID: 37811
                                   ActiveResv 0, PreemptionCnt 0
                                   StaticBW 155.52Mbps, ReservedBW: 0bps, AvailableBW: 155.52Mbps

                                   TElink: TElnk2, Link ID: 37808
                                   ActiveResv 1, PreemptionCnt 0
                                   StaticBW 155.52Mbps, ReservedBW: 0bps, AvailableBW: 155.52Mbps

                                   PEER-B State: Up
                                   Active Control Channel: so-1/0/0.0

                                   TElink: TElnkAB1, Link ID: 1598
                                   ActiveResv 0, PreemptionCnt 0
                                   StaticBW 622.08Mbps, ReservedBW: 0bps, AvailableBW: 622.08Mbps

                                   TElink: TElnkAB2, Link ID: 1597
                                   ActiveResv 0, PreemptionCnt 0
                                   StaticBW 622.08Mbps, ReservedBW: 0bps, AvailableBW: 622.08Mbps

```

show rsvp neighbor

Syntax	show rsvp neighbor <brief detail> <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show rsvp neighbor <brief detail>
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Resource Reservation Protocol (RSVP) neighbors that were discovered dynamically during the exchange of RSVP packets.
Options	none—Display standard information about RSVP neighbors. brief detail—(Optional) Display the specified level of output. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show rsvp neighbor on page 708 show rsvp neighbor detail on page 708
Output Fields	Table 183 on page 704 lists the output fields for the show rsvp neighbor command. Output fields are listed in the approximate order in which they appear.

Table 183: show rsvp neighbor Output Fields

Field Name	Field Description	Level of Output
RSVP neighbor	Number of neighbors that the routing device has learned of. Each neighbor has one line of output.	All levels
via	Name of the interface where the neighbor has been detected. In the case of generalized MPLS (GMPLS) LSPs, the name of the peer where the neighbor has been detected.	detail
Address	Address of a learned neighbor.	All levels
Idle	Length of time the neighbor has been idle, in seconds.	All levels
Up/Dn	Number of neighbor up or down transitions detected by RSVP hello packets. If the up count is 1 greater than the down count, the neighbor is currently up. Otherwise, the neighbor is down. Neighbors that do not support RSVP hello packets, such as routers running Junos OS Release 3.2 or earlier, are not reported as up or down.	All levels

Table 183: show rsvp neighbor Output Fields (*continued*)

Field Name	Field Description	Level of Output
Up cnt and Down cnt	Number of neighbor up or down transitions detected by RSVP hello packets. If the up count is 1 greater than the down count, the neighbor is currently up. Otherwise, the neighbor is down. Neighbors that do not support RSVP hello packets, such as routers running Junos OS Release 3.2 or earlier, are not reported as up or down.	detail
status	State of the RSVP neighbor: <ul style="list-style-type: none"> • Up—Routing device can detect RSVP Hello messages from the neighbor. • Down—Routing device has received one of the following indications: <ul style="list-style-type: none"> • Communication failure from the neighbor. • Communication from IGP that the neighbor is unavailable. • Change in the sequence numbers in the RSVP Hello messages sent by the neighbor. • Restarting—RSVP neighbor is unavailable and might be restarting. The neighbor remains in this state until it has restarted or is declared dead. This state is possible only when graceful restart is enabled. • Restarted—RSVP neighbor has restarted and is undergoing state recovery (graceful restart) procedures. • Dead—Routing device has lost all communication with the RSVP neighbor. Any RSVP sessions with that neighbor are torn down. 	detail
LastChange	Time elapsed since the neighbor state changed either from up to down or from down to up. The format is <i>hh:mm:ss</i> .	All levels
Last changed time	Time elapsed since the neighbor state changed either from up to down or from down to up.	detail
HelloInt	Frequency at which RSVP hellos are sent on this interface (in seconds).	All levels
HelloTx/Rx	Number of hello packets sent to and received from the neighbor.	All levels
Hello	Number of RSVP hello packets that have been sent to and received from the neighbor.	detail
Message received	Number of Path and Resv messages that this routing device has received from the neighbor.	detail
Remote Instance	Identification provided by the remote routing device during Hello message exchange.	detail
Local Instance	Identification sent to the remote routing device during Hello message exchange.	detail

Table 183: show rsvp neighbor Output Fields (*continued*)

Field Name	Field Description	Level of Output
Refresh reduction	<p>Measure of processing overhead requests of refresh messages. Refresh reduction extensions improve routing device performance by reducing the process overhead, thus increasing the number of LSPs a routing device can support. Refresh reduction can have the following values:</p> <ul style="list-style-type: none"> • operational—All four RSVP refresh reduction extensions—message ack, bundling, summary refresh, and staged refresh timer—are functional between the two neighboring routing devices. For a detailed explanation of these extensions, see RFC 2961. • incomplete—Some RSVP refresh reduction extensions are functional between the two neighboring routing devices. • no operational—Either the refresh reduction feature has been turned off, or the remote routing device cannot support the refresh reduction extensions. 	detail
Remote end	<p>Neighboring routing device's status with regard to refresh reduction:</p> <ul style="list-style-type: none"> • enabled—Remote routing device has requested refresh reduction during RSVP message exchanges. • disabled—Remote routing device does not require refresh reduction. 	detail
Ack-extension	<p>An RSVP refresh reduction extension:</p> <ul style="list-style-type: none"> • enabled—Both local and remote routing devices support the ack-extension (RFC 2961). • disabled—Remote routing device does not support the ack-extension. 	detail
Link protection	<p>Status of the MPLS fast reroute mechanism that protects traffic from link failure:</p> <ul style="list-style-type: none"> • enabled—Link protection feature has been turned on, protecting the neighbor with a bypass LSP. • disabled—No link protection feature has been enabled for this neighbor. 	detail
LSP name	Name of the bypass LSP.	detail
Bypass LSP	<p>Status of the bypass LSP. It can have the following values:</p> <ul style="list-style-type: none"> • does not exist—Bypass LSP is not available. • connecting—Routing device is in the process of establishing a bypass LSP, and the LSP is not available for link protection at the moment. • operational—Bypass LSP is up and running. • down—Bypass LSP has gone down, with the most probable cause a node or a link failure on the bypass path. 	detail
Backup routes	Number of user LSPs (or routes) that are being protected by a bypass LSP (before link failure).	detail
Backup LSPs	Number of LSPs that have been temporarily established to maintain traffic by refreshing the downstream LSPs during link failure (not a one-to-one correspondence).	detail
Bypass explicit route	Explicit route object's (ERO) path that is taken by the bypass LSP.	detail

Table 183: show rsvp neighbor Output Fields (*continued*)

Field Name	Field Description	Level of Output
Restart time	Length of time a neighbor waits to receive a Hello from the restarting node before declaring the node dead and deleting the states (in milliseconds).	detail
Recovery time	Length of time during which the restarting node attempts to recover its lost states with help from its neighbors (in milliseconds). Recovery time is advertised by the restarting node to its neighbors, and applies to nodal faults. The restarting node considers its graceful restart complete after this time has elapsed.	detail

```
show rsvp neighbor user@host> show rsvp neighbor
RSVP neighbor: 2 learned
Address           Idle Up/Dn LastChange HelloInt HelloTx/Rx
192.168.207.203    0 3/2    13:01      3   366/349
192.168.207.207    0 1/0    22:49      3   448/448
```



```
show rsvp neighbor user@host> show rsvp neighbor detail
detail
RSVP neighbor: 2 learned
Address: 192.168.207.203 via: ecstasy1 status: Up
  Last changed time: 28:47, Idle: 0 sec, Up cnt: 3, Down cnt: 2
  Message received: 632
  Hello: sent 673, received 656, interval 3 sec
  Remote instance: 0x6432838a, Local instance: 0x74b72e36
  Refresh reduction: operational
  Remote end: enabled, Ack-extension: enabled
  Link protection: enabled
  LSP name: Bypass_to_192.168.207.203
  Bypass LSP: operational, Backup routes: 1, Backup LSPs: 0
  Bypass explicit route: 192.168.207.207 192.168.207.224
  Restart time: 60000 msec, Recovery time: 0 msec
```

show rsvp session

Syntax	<pre>show rsvp session <brief detail extensive terse> <bidirectional unidirectional> <bypass> <down up> <interface <i>interface-name</i>> <logical-system (all <i>logical-system-name</i>)> <lsp-type> <name <i>session-name</i>> <p2mp> <session-type> <statistics> <te-link <i>te-link</i>></pre>
Syntax (EX Series Switch)	<pre>show rsvp session <brief detail extensive terse> <bidirectional unidirectional> <bypass> <down up> <interface <i>interface-name</i>> <lsp-type> <name <i>session-name</i>> <p2mp> <session-type> <statistics> <te-link <i>te-link</i>></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Command introduced in Junos OS Release 9.5 for EX Series switches.</p>
Description	Display information about Resource Reservation Protocol (RSVP) sessions.
Options	<p>none—Display standard information about all RSVP sessions.</p> <p>brief detail extensive terse—(Optional) Display the specified level of output.</p> <p>bidirectional unidirectional—(Optional) Display information about bidirectional or unidirectional RSVP sessions only, respectively.</p> <p>bypass—(Optional) Display RSVP sessions for bypass LSPs.</p> <p>down up—(Optional) Display only LSPs that are inactive or active, respectively.</p> <p>interface <i>interface-name</i>—(Optional) Display RSVP sessions for the specified interface only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>lsp-type</i>—(Optional) Display information about RSVP sessions with regard to LSPs:</p> <ul style="list-style-type: none"> • bypass—Sessions used for bypass LSPs.

- **lsp**—Sessions used to set up LSPs.
- **nolsp**—Sessions not used to set up LSPs.

name *session-name*—(Optional) Display information about the named session.

p2mp—(Optional) Display point-to-multipoint information.

session-type—(Optional) Display information about a particular session type:

- **egress**—Sessions that terminate on this routing device.
- **ingress**—Sessions that originate from this routing device.
- **transit**—Sessions that transit through this routing device.

statistics—(Optional) Display packet statistics.

te-link *te-link*—(Optional) Display sessions with reservations on the specified TE link.

Required Privilege Level view

Related Documentation

- [clear rsvp session on page 696](#)

List of Sample Output

- [show rsvp session on page 714](#)
- [show rsvp session statistics on page 714](#)
- [show rsvp session detail on page 714](#)
- [show rsvp session detail \(Path MTU Output Field\) on page 715](#)
- [show rsvp session detail \(GMPLS\) on page 715](#)
- [show rsvp session extensive on page 715](#)
- [show rsvp session p2mp \(Ingress Router\) on page 716](#)
- [show rsvp session p2mp \(Transit Router\) on page 716](#)

Output Fields Table 184 on page 710 describes the output fields for the **show rsvp session** command. Output fields are listed in the approximate order in which they appear.

Table 184: show rsvp session Output Fields

Field Name	Field Description	Level of Output
Ingress RSVP	Information about ingress RSVP sessions.	detail
Ingress RSVP	Information about ingress RSVP sessions. Each session has one line of output.	All levels
Egress RSVP	Information about egress RSVP sessions.	All levels
Transit RSVP	Information about the transit RSVP sessions.	All levels
P2MP name	(Appears only when the p2mp option is specified). Name of the point-to-multipoint LSP path.	All levels

Table 184: show rsvp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
P2MP branch count	(Appears only when the p2mp option is specified). Number of LSPs receiving packets from the point-to-multipoint LSP.	All levels
To	Destination (egress routing device) of the session.	All levels
From	Source (ingress routing device) of the session.	All levels
State	State of the path: Up , Down , or AdminDn . AdminDn indicates that the LSP is being taken down gracefully.	All levels
Address	Destination (egress routing device) of the LSP.	detail
From	Source (ingress routing device) of the session.	detail
LSPstate	State of the LSP that is being handled by this RSVP session. It can be either Up , Dn (down), or AdminDn . AdminDn indicates that the LSP is being taken down gracefully.	brief detail
Rt	Number of active routes (prefixes) that have been installed in the routing table. For ingress RSVP sessions, the routing table is the primary IPv4 table (inet.0). For transit and egress RSVP sessions, the routing table is the primary MPLS table (mpls.0).	brief
Active Route	Number of active routes (prefixes) that have been installed in the forwarding table. For ingress RSVP sessions, the forwarding table is the primary IPv4 table (inet.0). For transit and egress RSVP sessions, the forwarding table is the primary MPLS table (mpls.0).	detail
LSPname	Name of the LSP.	brief detail
LSPpath	Indicates whether the RSVP session is for the primary or secondary LSP path. LSPpath can be either primary or secondary and can be displayed on the ingress, egress, and transit routing devices. LSPpath can also indicate when a graceful LSP deletion has been triggered.	detail
Bypass	(Egress routing device) Destination address for the bypass LSP.	detail
Bidir	(When LSP is bidirectional) LSP will allow data to travel in both directions between GMPLS devices.	detail
Bidirectional	(When LSP is bidirectional) LSP will allow data to travel both ways between GMPLS devices.	detail
Upstream label in	(When LSP is bidirectional) Incoming label for reverse direction traffic for this LSP.	detail
Upstream label out	(When LSP is bidirectional) Outgoing label for reverse direction traffic for this LSP.	detail

Table 184: show rsvp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
Recovery label received	(When LSP is bidirectional) Label the upstream node suggests for use in the Resv message that is sent.	detail
Recovery label sent	(When LSP is bidirectional) Label the downstream node suggests for use in its Resv messages that is returned.	detail
Suggested label received	(When LSP is bidirectional) Label the upstream node suggests for use in the Resv message that is sent.	detail
Suggested label sent	(When LSP is bidirectional) Label the downstream node suggests for use in its Resv message that is returned.	detail
Resv style or Style	RSVP reservation style. This field consists of two parts. The first is the number of active reservations. The second is the reservation style, which can be FF (fixed filter), SE (shared explicit), or WF (wildcard filter).	brief detail
Label in	Incoming label for this LSP.	brief detail
Label out	Outgoing label for this LSP.	brief detail
Time left	Number of seconds remaining in the lifetime of the reservation.	brief detail
Since	Date and time when the RSVP session was initiated.	detail
Tspec	Sender's traffic specification, which describes the sender's traffic parameters.	detail
DiffServ info	Indicates whether the LSP is a multiclass LSP (multiclass diffServ-TE LSP) or a Differentiated-Services-aware traffic engineering LSP (diffServ-TE LSP).	detail
bandwidth	Bandwidth for each class type (ct0 , ct1 , ct2 , or ct3).	detail
Port number	Protocol ID and sender/receiver port used in this RSVP session.	detail
FastReroute desired	Fast reroute has been requested by the ingress routing device.	detail
Soft preemption desired	Soft preemption has been requested by the ingress routing device.	detail
FastReroute desired	(Data [not a bypass or backup] LSP when the protection scheme has been requested) Fast reroute (one-to-one backup) has been requested by the ingress routing device.	detail extensive
Link protection desired	(Data [not a bypass or backup] LSP when the protection scheme has been requested) Link protection (many-to-one backup) has been requested by the ingress routing device.	detail extensive

Table 184: show rsvp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
Node/Link protection desired	(Data [not a bypass or backup] LSP when the protection scheme has been requested) Node and link protection (many-to-one backup) has been requested by the ingress routing device.	detail extensive
Type	<p>LSP type:</p> <ul style="list-style-type: none"> • Link protected LSP—LSP has been protected by link protection at the outgoing interface. The name of the bypass used is also listed here (extensive). • Node/Link protected LSP—LSP has been protected by node and link protection at the outgoing interface. The name of the bypass used is also listed here (extensive). • Protection down—LSP is not currently protected. • Bypass LSP—LSP that is used to protect one or more user LSPs in case of link failure. • Backup LSP at Point-of-Local-Repair (PLR)—LSP that has been temporarily established to protect a user LSP at the ingress of a failed link. • Backup LSP at Merge Point (MP)—LSP that has been temporarily established to protect a user LSP at the egress of a failed link. 	detail extensive
New bypass	New bypass (the bypass name is also displayed) has been activated to protect the LSP.	extensive
Link protection up, using <i>bypass-name</i>	Link protection (the bypass name is also displayed) has been activated for the LSP.	extensive
Creating backup LSP, link down	A link down event occurred, and traffic is being switched over to the bypass LSP.	extensive
Deleting backup LSP, protected LSP restored	Link has come back up and the LSP has been restored. Because the backup LSP is no longer needed, it is deleted.	extensive
Path mtu	Displays the value of the path MTU received from the network (through signaling) and the value used for forwarding. This value is only displayed on ingress routing devices with the allow-fragmentation statement configured at the [edit protocols mpls path-mtu] hierarchy level. If there is a detour LSP, the path MTU for the detour is also displayed.	detail
PATH rcvfrom	Address of the previous-hop (upstream) routing device or client, interface the neighbor used to reach this routing device, and number of packets received from the upstream neighbor.	detail
Adspec	MTU signaled from the ingress routing device to the egress routing device by means of the adspec object.	detail
PATH sentto	Address of the next-hop (downstream) routing device or client, interface used to reach this neighbor (or peer-name in the GMPLS LSP case), and number of packets sent to the downstream routing device.	detail

Table 184: show rsvp session Output Fields (*continued*)

Field Name	Field Description	Level of Output
Explct route	Explicit route for the session. Normally this value will be the same as that of record route. Differences indicate that path rerouting has occurred, typically during fast reroute.	detail
Record route	Recorded route for the session, taken from the record route object. Normally this value will be the same as that of explct route. Differences indicate that path rerouting has occurred, typically during fast reroute.	detail

```

show rsvp session    user@host> show rsvp session
Ingress RSVP: 1 sessions
To          From          State  Rt  Style  Labelin  Labelout  LSPName
10.255.245.214 10.255.245.212 AdminDn 0 1 FF      -    22293 LSP Bidir
Total 1 displayed, Up 1, Down 0

Egress RSVP: 2 sessions
To          From          State  Rt  Style  Labelin  Labelout  LSPName
10.255.245.194 10.255.245.195 Up    0 1 FF    39811    -    Gpro3-ba Bidir
10.255.245.194 10.255.245.195 Up    0 1 FF      3      -    pro3-ba
Total 2 displayed, Up 2, Down 0

Transit RSVP: 1 sessions
To          From          State  Rt  Style  Labelin  Labelout  LSPName
10.255.245.198 10.255.245.197 Up    0 1 SE   100000    3    pro3-de
Total 1 displayed, Up 1, Down 0

show rsvp session    user@host> show rsvp session statistics
statistics          Ingress RSVP: 2 sessions
To          From          State  Packets  Bytes  LSPName
10.255.245.24 10.255.245.22 Up    0        0    pro3-bd
10.255.245.24 10.255.245.22 Up   44868   2333136 pro3-bd-2
Total 2 displayed, Up 2, Down 0
Egress RSVP: 2 sessions
To          From          State  Packets  Bytes  LSPName
10.255.245.22 10.255.245.24 Up    0        0    pro3-db
10.255.245.22 10.255.245.24 Up    0        0    pro3-db-2
Total 2 displayed, Up 2, Down 0
Transit RSVP: 0 sessions
Total 0 displayed, Up 0, Down 0

show rsvp session    user@host> show rsvp session detail
detail              Ingress RSVP: 1 sessions
1.1.1.1
  From: 2.2.2.2, LSPstate: Up, ActiveRoute: 0
  LSPName: to-a, LSPpath: Primary
  Suggested label received: -, Suggested label sent: -
  Recovery label received: -, Recovery label sent: 3
  Resv style: 1 FF, Label in: -, Label out: 3
  Time left: -, Since: Fri Mar 26 18:42:42 2004
  Tspec: rate 300kbps size 300kbps peak Infbps m 20 M 1500
  DiffServ info: diffServ-TE LSP, bandwidth: <ct1 300kbps>
  Port number: sender 1 receiver 15876 protocol 0
  PATH rcvfrom: localclient

```



```

Adspec: sent MTU 1500
PATH sentto: 192.168.37.16 (t1-0/2/1.0) 1 pkt

show rsvp session detail (Path MTU Output Field) user@host> show rsvp session detail
Ingress RSVP: 1 sessions
10.255.245.3
  From: 10.255.245.5, LSPstate: Up, ActiveRoute: 3
  LSPname: to-c, LSPpath: Primary
  Suggested label received: -, Suggested label sent: -
  Recovery label received: -, Recovery label sent: 100432
  Resv style: 1 FF, Label in: -, Label out: 100432
  Time left: -, Since: Mon Aug 16 17:54:40 2006
  Tspec: rate 0bps size 0bps peak Infbps m 20 M 9192
  Port number: sender 1 receiver 57843 protocol 0
  FastReroute desired
  PATH rcvfrom: localclient
  Adspec: sent MTU 4470
  Path mtu: received 4470, using 4458 for forwarding
  PATH sentto: 192.168.37.89 (so-0/2/3.0) 11 pkts
  RESV rcvfrom: 192.168.37.89 (so-0/2/3.0) 10 pkts
  Explct route: 192.168.37.89
  Record route: <self> 192.168.37.89 192.168.37.87
  Detour is Up
  Detour Tspec: rate 0bps size 0bps peak Infbps m 20 M 9192
  Detour adspec: sent MTU 1512
  Path mtu: received 1512, using 1500 for forwarding

show rsvp session detail (GMPLS) user@host> show rsvp session detail
Ingress RSVP: 1 sessions
192.168.4.1
  From: 192.168.1.1, LSPstate: Dn, ActiveRoute: 0
  LSPname: gmp1s-r1-to-r3, LSPpath: Primary
  Bidirectional, Upstream label in: 21253, Upstream label out: -
  Suggested label received: -, Suggested label sent: 21253
  Recovery label received: -, Recovery label sent: -
  Resv style: 0 -, Label in: -, Label out: -
  Time left: -, Since: Mon Aug 16 17:54:40 2006
  Tspec: rate 0bps size 0bps peak 155.52Mbps m 20 M 1500
  Port number: sender 2 receiver 46115 protocol 0
  PATH rcvfrom: localclient
  Adspec: sent MTU 1500
  PATH MTU: received 0
  PATH sentto: 10.35.1.5 (so-0/2/3.0) 11 pkts
  Explct route: 100.100.100.100 93.93.93.93
  Record route: <self> 100.100.100.100 93.93.93.93
  Total 1 displayed, Up 0, Down 1
  Egress RSVP: 0 sessions
  Total 0 displayed, Up 0, Down 0
  Transit RSVP: 0 sessions
  Total 0 displayed, Up 0, Down 0

show rsvp session extensive user@host> show rsvp session extensive
10.255.245.13
  From: 10.255.245.48, LSPstate: Up, ActiveRoute: 0
  ....
  Link protection desired
  Type: Link protected LSP, using p2
  11 Feb 6 15:24:16 Backup LSP: Call was cleared by RSVP
  10 Feb 6 15:24:16 Backup LSP: Session preempted
  9 Feb 6 15:24:16 Deleting backup LSP, protected LSP restored

```

```

8 Feb 6 15:23:22 Backup LSP: Up 192.168.208.117(Label=3)
7 Feb 6 15:23:22 Backup LSP: Record Route: 192.168.208.117(Label=3)
6 Feb 6 15:23:19 Backup LSP: Explicit Route: wrong delivery
5 Feb 6 15:23:19 Creating backup LSP, link down
4 Feb 6 12:36:03 Link protection up, using p2
3 Feb 6 12:35:56 New bypass p2
2 Feb 6 12:35:47 Bypass state down, p1[2 times]
1 Feb 6 12:35:39 New bypass p1

```

**show rsvp session
p2mp (Ingress Router)**

```

user@host> show rsvp session p2mp
Ingress RSVP: 3 sessions
P2MP name: test, P2MP branch count: 1
To          From          State   Rt Style Labelin Labelout LSPname
10.255.10.95 10.255.10.2   Up      0  1 SE  -         3 to-pe1
P2MP name: test2, P2MP branch count: 2
To          From          State   Rt Style Labelin Labelout LSPname
10.255.10.23 10.255.10.2   Up      0  1 SE  -         299776 to-pe3
10.255.10.16 10.255.10.2   Up      0  1 SE  -         299776 to-pe4
Total 3 displayed, Up 3, Down 0

Egress RSVP: 0 sessions
Total 0 displayed, Up 0, Down 0

Transit RSVP: 0 sessions
Total 0 displayed, Up 0, Down 0

```

**show rsvp session
p2mp (Transit Router)**

```

user@host> show rsvp session p2mp
Ingress RSVP: 1 sessions
P2MP name: test, P2MP branch count: 1
To          From          State   Rt Style Labelin Labelout LSPname
10.255.10.23 10.255.10.95   Up      0  1 SE  -         299792 to-pe2
Total 1 displayed, Up 1, Down 0

Egress RSVP: 1 sessions
P2MP name: test, P2MP branch count: 1
To          From          State   Rt Style Labelin Labelout LSPname
10.255.10.95 10.255.10.2   Up      0  1 SE  3         - to-pe1
Total 1 displayed, Up 1, Down 0

Transit RSVP: 2 sessions
P2MP name: test2, P2MP branch count: 2
To          From          State   Rt Style Labelin Labelout LSPname
10.255.10.23 10.255.10.2   Up      0  1 SE  299776  299808 to-pe3
10.255.10.16 10.255.10.2   Up      0  1 SE  299776  299856 to-pe4
Total 2 displayed, Up 2, Down 0

```

show rsvp statistics

Syntax	show rsvp statistics <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show rsvp statistics
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display Resource Reservation Protocol (RSVP) packet and error statistics.
Options	none—Display RSVP packet and error statistics. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
Related Documentation	<ul style="list-style-type: none"> clear rsvp statistics on page 698
List of Sample Output	show rsvp statistics on page 719
Output Fields	Table 185 on page 717 describes the output fields for the show rsvp statistics command. Output fields are listed in the approximate order in which they appear.

Table 185: show rsvp statistics Output Fields

Field Name	Field Description
Packet Type	Statistics about different RSVP messages.
Total Sent	Total number of packets sent since RSVP was enabled.
Total Received	Total number of packets received since RSVP was enabled.
Last 5 seconds Sent	Total number of packets sent in the last 5 seconds.
Last 5 seconds Received	Number of packets received in the last 5 seconds.
Path	Statistics about Path messages, which are sent from the RSVP sender along the data paths and which store path state information in each node along the path.
PathErr	Statistics about PathErr messages, which are advisory messages that are sent upstream to the sender.
PathTear	Statistics about PathTear messages, which remove path states and dependent reservation states in any routing devices along a path.

Table 185: show rsvp statistics Output Fields (*continued*)

Field Name	Field Description
Resv FF	Statistics about fixed-filter reservation style messages, which consist of distinct reservations among explicit senders.
Resv WF	Statistics about wildcard-filter reservation style messages, which consist of shared reservations among wildcard senders.
Res SE	Statistics about shared-explicit reservation style messages, which consist of shared reservations among explicit senders.
ResvErr	Statistics about ResvErr messages, which are advisory messages that are sent when an attempt to establish a reservation fails.
ResvTear	Statistics about ResvTear messages, which remove reservation states along a path.
ResvConf	Statistics about ResvConfirm messages, which are responses to confirm a reservation request.
Ack	Acknowledge message for refresh reductions.
SRefresh	Summary refresh messages.
Hello	Number of RSVP hello packets that have been sent to and received from the neighbor.
EndtoEnd RSVP	Statistics for the number of End-to-end RSVP messages.
Errors	Statistics about errored RSVP packets.
Rcv pkt bad length	The packet was not processed because its length is inappropriate.
Rcv pkt unknown type	The packet is not one of the well-known RSVP types, as defined in RFC 2205, <i>Resource ReSerVation Protocol (RSVP)</i> .
Rcv pkt bad version	The packet is not an RSVP version 1 packet.
Rcv pkt auth fail	The packet failed authentication checks.
Rcv pkt bad checksum	The RSVP checksum check failed.
Rcv pkt bad format	General packet processing failed because the packet was badly formed.
Memory allocation fail	An internal resource failure occurred.
No path information	A reservation was received, but no sender is active.
Resv style conflict	The same session contains inconsistent reservation styles.
Port conflict	There were inconsistent port numbers for the same session.
Resv no interface	An interface for the receive reservation packets cannot be located.

Table 185: show rsvp statistics Output Fields (*continued*)

Field Name	Field Description
PathErr to client	Number of PathErr packets delivered to the local client.
ResvErr to client	Number of ResvErr packets delivered to the local client.
Path timeout	Number of times the sender timed out because the path was removed.
Resv timeout	Number of times the receiver timed out because the reservation was removed.
Message out-of-order	Records the number of RSVP incoming messages that are considered out of order. This is detected from the message ID object's sequence number.
Unknown ack msg	A neighboring routing device replies with an ACK object that contains an unknown message ID. This can indicate a message ID handshake problem. For example, a router receives an ACK for message IDs 1, 2, and 3. However, it only has state for message IDs 1 and 3. The router increments the unknown ack counter by 1.
Recv nack	If a neighboring router receives an unknown message ID in an RSVP refresh message, the router sends a Resv nack message back to the sender. This can happen if that neighbor has been rebooted. For this case, the router sends a regular RSVP refresh message to recover the state and start the message-ID handshake process again.
Recv duplicated msg-id	Number of times the same message ID is used by two different RSVP messages. This duplication is usually caused when a neighboring routing device restarts.
No TE-link to rcv Hop	Counter of packets discarded because a TE link was not found.
Rcv pkt disabled interface	Number of RSVP packets received on an interface that is not enabled for RSVP.
Transmit buffer full	Number of times the buffer for assembling an outgoing RSVP message was not large enough.
Transmit failure	Number of times the RSVP task failed to send out a packet.
Receive failure	Number of times the RSVP task failed to read an incoming packet.
P2MP RESV discarded by appl	Number of Resv messages discarded because the MPLS label is not valid for the P2MP LSP application.
Rate limit	Number of RSVP packets dropped due to rate limiting.
Err msg loop detected	Number of RSVP error messages that have looped back to their originator. This is detected by checking the error node address in the ERROR_SPEC object.

```

show rsvp statistics  user@host> show rsvp statistics
                        PacketType          Total          Last 5 seconds
                        Sent      Received      Sent      Received
                        Path          355          408          0          0
                        PathErr        2           13          0          0
                        PathTear      101          139          0          0

```

Resv FF	0	0	0	0
Resv WF	0	0	0	0
Resv SE	419	225	0	0
ResvErr	0	0	0	0
ResvTear	0	13	0	0
ResvConf	0	0	0	0
Ack	682	1414	0	0
SRefresh	395198	236030	5	2
Hello	578809	578221	4	4
EndtoEnd RSVP	0	0	0	0
Errors	Total		Last 5 seconds	
Rcv pkt bad length	0		0	
Rcv pkt unknown type	0		0	
Rcv pkt bad version	0		0	
Rcv pkt auth fail	0		0	
Rcv pkt bad checksum	0		0	
Rcv pkt bad format	0		0	
Memory allocation fail	0		0	
No path information	10		0	
Resv style conflict	0		0	
Port conflict	0		0	
Resv no interface	0		0	
PathErr to client	38		0	
ResvErr to client	0		0	
Path timeout	8		0	
Resv timeout	57		0	
Message out-of-order	0		0	
Unknown ack msg	2978		0	
Recv nack	86		0	
Recv duplicated msg-id	5		0	
No TE-link to recv Hop	0		0	
Rcv pkt disabled interface	0		0	
Transmit buffer full	0		0	
Transmit failure	0		0	
Receive failure	0		0	
P2MP RESV discarded by appl	0		0	
Rate limit	306		0	
Err msg loop detected	0		0	

show rsvp version

Syntax	show rsvp version <logical-system (all <i>logical-system-name</i>)>
Syntax (EX Series Switch)	show rsvp version
Release Information	Command introduced before Junos OS Release 7.4. Command introduced in Junos OS Release 9.5 for EX Series switches.
Description	Display information about the Resource Reservation Protocol (RSVP) protocol settings, such as the version of the RSVP software, the refresh timer and keep multiplier, and local RSVP graceful restart capabilities on a routing device.
Options	none—Display RSVP protocol settings. logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.
Required Privilege Level	view
List of Sample Output	show rsvp version (Router in Steady State) on page 722 show rsvp version (Router Restarting) on page 722
Output Fields	Table 186 on page 721 describes the output fields for the show rsvp version command. Output fields are listed in the approximate order in which they appear.

Table 186: show rsvp version Output Fields

Field Name	Field Description
Resource ReSerVation Protocol, version	RSVP software version.
RSVP protocol	Status of RSVP: Enabled or Disabled .
R(refresh timer)	Configured time interval used to generate periodic RSVP messages.
K(keep multiplier)	Number of RSVP messages that can be lost before an RSVP state is declared stale.
Preemption	Currently configured preemption capability: Aggressive , Disabled , or Normal . The default is Normal .
Graceful deleting timeout	Currently configured value for the graceful-deletion-timeout statement. The router that initiates the graceful deletion procedure for an RSVP session waits for the graceful deletion timeout interval to ensure that all routers along the path (especially the ingress and egress routers) have prepared for the LSP to be taken down.
Graceful restart	Status of the graceful restart feature for RSVP on the restarting routing device: Enabled or Disabled .

Table 186: show rsvp version Output Fields (*continued*)

Field Name	Field Description
Restart helper mode	Status of the helper mode feature: Enabled or Disabled . When this feature is enabled, the restarting routing device can help the neighbor with its RSVP restart procedures.
Maximum helper restart time	Number of milliseconds (ms) configured for the maximum helper restart time. The maximum helper restart time is the length of time the routing device waits before declaring that an RSVP neighbor attempting to restart gracefully is down.
Maximum helper recovery time	Number of milliseconds configured for the maximum helper recovery time. The maximum helper recovery time is the amount of time the routing device maintains the state of an RSVP neighbor attempting to restart gracefully.
Restart time	Number of milliseconds that a neighbor waits to receive a Hello message from the restarting node before declaring the node dead and deleting the states.
Recovery time	Number of milliseconds during which the restarting node attempts to recover its lost states with help from its neighbors. Recovery time is advertised by the restarting node to its neighbors, and applies to nodal faults. The restarting node considers its graceful restart complete after this time has elapsed.
Soft-preemption cleanup	Time, in seconds, that an LSP is kept after it has been soft preempted. This is a global property of the RSVP protocol.

```

show rsvp version      user@host> show rsvp version
(Router in Steady      Resource ReSerVation Protocol, version 1. rfc2205
State)
                        RSVP protocol           Enabled
                        R(refresh timer)         30 seconds
                        K(keep multiplier)       3
                        Preemption              Normal
                        Soft-preemption cleanup   60 seconds
                        Graceful restart         Enabled
                        Restart helper mode      Enabled
                        Restart time             60000 msec

```

```

show rsvp version      user@host> show rsvp version
(Router Restarting)    Resource ReSerVation Protocol, version 1. rfc2205
                        RSVP protocol:          Enabled
                        R(refresh timer):        30 seconds
                        K(keep multiplier):      3
                        Preemption:             Normal
                        Soft-preemption cleanup:  30 seconds
                        Graceful deletion timeout: 30 seconds
                        Graceful restart:        Disabled
                        Restart helper mode:      Enabled
                        Maximum helper restart time: 20000 msec
                        Maximum helper recovery time: 180000 msec
                        Restart time:            0 msec

```


PART 4

Layer 2 Bridging and Switching Operational Mode Commands

- Layer 2 Bridging and Switching Operational Mode Commands on page 725
- Spanning Tree Operational Mode Commands on page 751

Layer 2 Bridging and Switching

Operational Mode Commands

Table 187 on page 725 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Layer 2 bridging and switching. Commands are listed in alphabetical order.

Table 187: Layer 2 Bridging and Switching Operational Mode Commands

Task	Command
Clear learned Layer 2 address information from the media access control (MAC) address table.	clear bridge mac-table
Clear bridge protocol data unit (BPDU) error on interface due to possible bridge spanning tree protocol (STP) loop.	clear error bpd
Clear a MAC rewrite error condition for Layer 2 protocol tunneling.	clear error mac-rewrite
Display bridge domain information.	show bridge domain
Display bridging flooding information.	show bridge flood
Display learned Layer 2 MAC address information.	show bridge mac-table
Display bridge statistics.	show bridge statistics
Display Layer 2 learning process-related information.	show l2-learning global-information
(MX Series routers only) Display the total number of dynamic and static MAC addresses learned for the entire router.	show l2-learning global-mac-count
Display configured Layer 2 routing instances.	show l2-learning instance
Display configured Layer 2 interfaces.	show l2-learning interface
Display Layer 2 interfaces.	show mac-rewrite interface

clear bridge mac-table

Syntax	<code>clear bridge mac-table</code> <code><bridge-domain (all <i>bridge-domain-name</i>)></code> <code><instance <i>instance-name</i>></code> <code><interface <i>interface-name</i>></code> <code><learning-vlan id (all-vlan <i>learning-vlan-id</i>)></code> <code><mac-address></code>
Release Information	Command introduced in Junos OS Release 8.4.
Description	(MX Series routers only) Clear learned Layer 2 address information from the media access control (MAC) address table.
Options	<p>none—Clear all learned Layer 2 address information from the MAC address table.</p> <p>bridge-domain (all <i>bridge-domain-name</i>)—(Optional) Clear learned Layer 2 MAC addresses for all bridging domains or for the specified bridging domain.</p> <p>instance <i>instance-name</i>—(Optional) Clear learned Layer 2 MAC addresses for the specified routing instance.</p> <p>interface <i>interface-name</i>—(Optional) Clear learned Layer 2 MAC addresses for the specified interface.</p> <p>learning-vlan-id (all-vlan <i>learning-vlan-id</i>)—(Optional) Clears learned Layer 2 MAC addresses for all VLANs or for the specified VLAN.</p> <p>mac-address—(Optional) Clear the specified learned Layer 2 address from the MAC address table.</p>
Required Privilege Level	clear
List of Sample Output	clear bridge mac-table on page 726
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear bridge mac-table	user@host> clear bridge mac-table

clear error bpdu

Syntax	clear error bpdu <interface <i>interface-name</i>>
Release Information	Command introduced in Junos OS Release 9.4.
Description	(MX Series routers only) Clear a bridge protocol data unit (BPDU) error condition caused by the detection of a possible bridging loop from Spanning Tree Protocol (STP) operation.
Options	interface <i>interface-name</i> —(Optional) Clear the BPDU error condition for the specified interface.
Required Privilege Level	clear
List of Sample Output	clear error bpdu interface on page 727
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear error bpdu interface	<pre>user@host> clear error bpdu interface ge-1/1/1</pre>

clear error mac-rewrite

Syntax	clear error mac-rewrite <interface <i>interface-name</i>>
Release Information	Command introduced in Junos OS Release 9.1.
Description	(MX Series routers only) Clear a MAC rewrite error condition caused by the reception of tunneled Cisco Discovery Protocol (CDP), Spanning Tree Protocol (STP), or VLAN Trunk Protocol (VTP) packets on an interface with Layer 2 protocol tunneling enabled.
Options	<i>interface interface-name</i> —(Optional) Clear the MAC rewrite error condition for the specified interface.
Required Privilege Level	clear
List of Sample Output	clear error mac-rewrite interface on page 728
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear error mac-rewrite interface	<pre>user@host> clear error mac-rewrite interface ge-1/0/1</pre>

show bridge domain

Syntax	<pre>show bridge domain <brief detail extensive> <bridge-domain (all domain-name)> <instance instance-name> <operational></pre>																		
Release Information	Command introduced in Junos OS Release 8.4.																		
Description	(MX Series routers only) Display bridge domain information.																		
Options	<p>none—Display information for all bridge domains.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>bridge-domain (all domain-name)— (Optional) Display information about all bridge domains or the specified bridge domain.</p> <p>instance instance-name—(Optional) Display information for the specified routing instance.</p> <p>operational—(Optional) Display information for the operational routing instances.</p>																		
Required Privilege Level	view																		
List of Sample Output	<pre>show bridge domain on page 729 show bridge domain brief on page 729 show bridge domain detail on page 729</pre>																		
show bridge domain	<pre>user@host> show bridge domain</pre> <table> <thead> <tr> <th>Instance</th><th>Primary Table</th><th>Bridging Domain</th><th>Type</th><th>Active</th></tr> </thead> <tbody> <tr> <td>vs1</td><td>bridge.0</td><td>vlan100</td><td>bridge</td><td>2</td></tr> <tr> <td>vs1</td><td>bridge.0</td><td>vlan200</td><td>bridge</td><td>0</td></tr> </tbody> </table>				Instance	Primary Table	Bridging Domain	Type	Active	vs1	bridge.0	vlan100	bridge	2	vs1	bridge.0	vlan200	bridge	0
Instance	Primary Table	Bridging Domain	Type	Active															
vs1	bridge.0	vlan100	bridge	2															
vs1	bridge.0	vlan200	bridge	0															
show bridge domain brief	<pre>user@host> show bridge domain brief</pre> <table> <thead> <tr> <th>Instance</th><th>Primary Table</th><th>Bridging Domain</th><th>Type</th><th>Active</th></tr> </thead> <tbody> <tr> <td>vs1</td><td>bridge.0</td><td>vlan100</td><td>bridge</td><td>2</td></tr> <tr> <td>vs1</td><td>bridge.0</td><td>vlan200</td><td>bridge</td><td>0</td></tr> </tbody> </table>				Instance	Primary Table	Bridging Domain	Type	Active	vs1	bridge.0	vlan100	bridge	2	vs1	bridge.0	vlan200	bridge	0
Instance	Primary Table	Bridging Domain	Type	Active															
vs1	bridge.0	vlan100	bridge	2															
vs1	bridge.0	vlan200	bridge	0															
show bridge domain detail	<pre>user@host> show bridge domain detail</pre> <pre>Routing Instance:vs1 Bridging Domain:vlan100 Router ID: 0.0.0.0 Type: bridge State: Active Interfaces: ge-11/0/3.0 ge-11/1/4.100 ge-11/1/1.100</pre>																		

```
ge-11/1/0.100
xe-10/2/0.100
xe-10/0/0.100
Tables:
  bridge.0                : 2 macs (2 active)
Routing Instance:vs1
  Bridging Domain:vlan200
  Router ID: 0.0.0.0
  Type: bridge             State: Active
  Interfaces:
    ge-11/1/0.200
    ge-11/1/1.200
    ge-11/1/4.200
    xe-10/0/0.200
    xe-10/2/0.200
  Tables:
    bridge.0              : 0 macs (0 active)
```


show bridge flood

Syntax	<pre>show bridge flood <brief detail extensive> <bridge-domain <i>domain-name</i>> <event-queue> <instance <i>instance-name</i>> <route (all-ce-flood all ve-flood alt-root-flood bd-flood mlp-flood re-flood)></pre>
Release Information	Command introduced in Junos OS Release 8.4.
Description	(MX Series routers only) Display bridging flooding information.
Options	<p>none—Display all bridging flooding information for all bridging domains.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p>bridge-domain <i>domain-name</i>—(Optional) Display bridging flooding information for the specified bridge domain.</p> <p>event-queue—(Optional) Display the queue of pending bridge flood events.</p> <p>instance <i>instance-name</i>—(Optional) Display bridging flooding information for the specified routing instance.</p> <p>route (all-ce-flood all ve-flood alt-root-flood bd-flood mlp-flood re-flood)—(Optional) Display the following:</p> <ul style="list-style-type: none"> • all-ce-flood—Display the route for flooding traffic to all customer edge routers if no-local-switching is enabled. • all-ve-flood—Display the route for flooding traffic to all VPLS edge routers if no-local-switching is enabled. • alt-root-flood—Display the Spanning Tree Protocol (STP) alt-root flooding route used for the interface. • bd-flood—Display the route for flooding traffic of a bridge domain if no-local-switching is not enabled. • mlp-flood—Display the route for flooding traffic to MAC learning chips. • re-flood—Display the route for Routing Engine flooding to all interfaces.
Required Privilege Level	view
List of Sample Output	<p>show bridge flood on page 732</p> <p>show bridge flood brief on page 732</p> <p>show bridge flood detail on page 732</p> <p>show bridge flood extensive on page 733</p>
Output Fields	to be provided

```

show bridge flood user@host> show bridge flood
Name: __juniper_private1__
CEs: 0
VEs: 0
Flood Routes:
  Prefix  Type      Owner      NhType      NhIndex
  0x36/16  MLP_FLOOD  __vs1+vlan100__  flood      426
  0x3a/16  MLP_FLOOD  __vs1+vlan200__  flood      428
Name: vs1::vlan100
CEs: 6
VEs: 0
Flood Routes:
  Prefix  Type      Owner      NhType      NhIndex
  0x35/16  ALL_FLOOD  __vs1+vlan100__  flood      425
  0x35/16  RE_FLOOD   __vs1+vlan100__  flood      425
  0x3780/17 ALT_ROOT_RT ge-11/0/3.0      flood      425
  0x3b80/17 ALT_ROOT_RT ge-11/1/4.100    flood      425
  0x3c80/17 ALT_ROOT_RT ge-11/1/1.100    flood      425
  0x3d80/17 ALT_ROOT_RT ge-11/1/0.100    flood      425
  0x3e80/17 ALT_ROOT_RT xe-10/2/0.100    flood      425
  0x3f80/17 ALT_ROOT_RT xe-10/0/0.100    flood      425
Name: vs1::vlan200
CEs: 5
VEs: 0
Flood Routes:
  Prefix  Type      Owner      NhType      NhIndex
  0x39/16  ALL_FLOOD  __vs1+vlan200__  flood      427
  0x39/16  RE_FLOOD   __vs1+vlan200__  flood      427
  0x4180/17 ALT_ROOT_RT ge-11/1/0.200    flood      427
  0x4080/17 ALT_ROOT_RT ge-11/1/1.200    flood      427
  0x4280/17 ALT_ROOT_RT ge-11/1/4.200    flood      427
  0x4480/17 ALT_ROOT_RT xe-10/0/0.200    flood      427
  0x4380/17 ALT_ROOT_RT xe-10/2/0.200    flood      427

```

```

show bridge flood brief user@host> show bridge flood brief
Name      Active CEs      Active VEs
__juniper_private1__  0      0
vs1::vlan100      6      0
vs1::vlan200      5      0

```

```

show bridge flood detail user@host> show bridge flood detail
Name: __juniper_private1__
CEs: 0
VEs: 0
Flood Routes:
  Prefix  Type      Owner      NhType      NhIndex
  0x36/16  MLP_FLOOD  __vs1+vlan100__  flood      426
  0x3a/16  MLP_FLOOD  __vs1+vlan200__  flood      428
Name: vs1::vlan100
CEs: 6
VEs: 0
Flood Routes:
  Prefix  Type      Owner      NhType      NhIndex
  0x35/16  ALL_FLOOD  __vs1+vlan100__  flood      425
  0x35/16  RE_FLOOD   __vs1+vlan100__  flood      425
  0x3780/17 ALT_ROOT_RT ge-11/0/3.0      flood      425
  0x3b80/17 ALT_ROOT_RT ge-11/1/4.100    flood      425
  0x3c80/17 ALT_ROOT_RT ge-11/1/1.100    flood      425
  0x3d80/17 ALT_ROOT_RT ge-11/1/0.100    flood      425
  0x3e80/17 ALT_ROOT_RT xe-10/2/0.100    flood      425

```

```

0x3f80/17 ALT_ROOT_RT xe-10/0/0.100 flood 425
Name: vs1::vlan200
CEs: 5
VEs: 0
Flood Routes:
  Prefix    Type      Owner      NhType      NhIndex
0x39/16    ALL_FLOOD __vs1+vlan200__ flood 427
0x39/16    RE_FLOOD  __vs1+vlan200__ flood 427
0x4180/17 ALT_ROOT_RT ge-11/1/0.200 flood 427
0x4080/17 ALT_ROOT_RT ge-11/1/1.200 flood 427
0x4280/17 ALT_ROOT_RT ge-11/1/4.200 flood 427
0x4480/17 ALT_ROOT_RT xe-10/0/0.200 flood 427
0x4380/17 ALT_ROOT_RT xe-10/2/0.200 flood 427

```

show bridge flood extensive

```

user@host> show bridge flood extensive
Name: __juniper_private1__
CEs: 0
VEs: 0
Flood route prefix: 0x36/16
Flood route type: MLP_FLOOD
Flood route owner: __vs1+vlan100__
Nexthop type: flood
Nexthop index: 426
  Interfaces Flooding to:
    Name      Type      NhType      Index
    lc-11/0/0.32769 LC
    lc-10/2/0.32769 LC
    lc-10/0/0.32769 LC
    lc-11/1/0.32769 LC

Flood route prefix: 0x3a/16
Flood route type: MLP_FLOOD
Flood route owner: __vs1+vlan200__
Nexthop type: flood
Nexthop index: 428
  Interfaces Flooding to:
    Name      Type      NhType      Index
    lc-10/0/0.32769 LC
    lc-10/2/0.32769 LC
    lc-11/1/0.32769 LC
Name: vs1::vlan100
CEs: 6
VEs: 0

Flood route prefix: 0x35/16
Flood route type: ALL_FLOOD
Flood route owner: __vs1+vlan100__
Nexthop type: flood
Nexthop index: 425
  Interfaces Flooding to:
    Name      Type      NhType      Index
    ge-11/0/3.0 CE
    ge-11/1/4.100 CE
    ge-11/1/1.100 CE
    ge-11/1/0.100 CE
    xe-10/2/0.100 CE
    xe-10/0/0.100 CE

Flood route prefix: 0x35/16
Flood route type: RE_FLOOD
Flood route owner: __vs1+vlan100__

```

```

Nexthop type: flood
Nexthop index: 425
  Interfaces Flooding to:
    Name      Type      NhType      Index
    ge-11/0/3.0    CE
    ge-11/1/4.100  CE
    ge-11/1/1.100  CE
    ge-11/1/0.100  CE
    xe-10/2/0.100  CE
    xe-10/0/0.100  CE

```

```

Flood route prefix: 0x3780/17
Flood route type: ALT_ROOT_RT
Flood route owner: ge-11/0/3.0
Nexthop type: flood
Nexthop index: 425

```

```

  Interfaces Flooding to:
    Name      Type      NhType      Index
    ge-11/0/3.0    CE
    ge-11/1/4.100  CE
    ge-11/1/1.100  CE
    ge-11/1/0.100  CE
    xe-10/2/0.100  CE
    xe-10/0/0.100  CE

```

```

Flood route prefix: 0x3b80/17
Flood route type: ALT_ROOT_RT
Flood route owner: ge-11/1/4.100
Nexthop type: flood
Nexthop index: 425

```

```

  Interfaces Flooding to:
    Name      Type      NhType      Index
    ge-11/0/3.0    CE
    ge-11/1/4.100  CE
    ge-11/1/1.100  CE
    ge-11/1/0.100  CE
    xe-10/2/0.100  CE
    xe-10/0/0.100  CE

```

```

Flood route prefix: 0x3c80/17
Flood route type: ALT_ROOT_RT
Flood route owner: ge-11/1/1.100
Nexthop type: flood
Nexthop index: 425

```

```

  Interfaces Flooding to:
    Name      Type      NhType      Index
    ge-11/0/3.0    CE
    ge-11/1/4.100  CE
    ge-11/1/1.100  CE
    ge-11/1/0.100  CE
    xe-10/2/0.100  CE
    xe-10/0/0.100  CE

```

```

Flood route prefix: 0x3d80/17
Flood route type: ALT_ROOT_RT
Flood route owner: ge-11/1/0.100
Nexthop type: flood
Nexthop index: 425

```

```

  Interfaces Flooding to:
    Name      Type      NhType      Index
    ge-11/0/3.0    CE

```

```

ge-11/1/4.100    CE
ge-11/1/1.100    CE
ge-11/1/0.100    CE
xe-10/2/0.100    CE
xe-10/0/0.100    CE

```

```

Flood route prefix: 0x3e80/17
Flood route type: ALT_ROOT_RT
Flood route owner: xe-10/2/0.100
Nexthop type: flood
Nexthop index: 425

```

```

  Interfaces Flooding to:

```

Name	Type	NhType	Index
ge-11/0/3.0	CE		
ge-11/1/4.100	CE		
ge-11/1/1.100	CE		
ge-11/1/0.100	CE		
xe-10/2/0.100	CE		
xe-10/0/0.100	CE		

```

Flood route prefix: 0x3f80/17
Flood route type: ALT_ROOT_RT
Flood route owner: xe-10/0/0.100
Nexthop type: flood
Nexthop index: 425

```

```

  Interfaces Flooding to:

```

Name	Type	NhType	Index
ge-11/0/3.0	CE		
ge-11/1/4.100	CE		
ge-11/1/1.100	CE		
ge-11/1/0.100	CE		
xe-10/2/0.100	CE		
xe-10/0/0.100	CE		

```

Name: vs1::vlan200

```

```

CEs: 5

```

```

VEs: 0

```

```

Flood route prefix: 0x39/16
Flood route type: ALL_FLOOD
Flood route owner: __vs1+vlan200__
Nexthop type: flood
Nexthop index: 427

```

```

  Interfaces Flooding to:

```

Name	Type	NhType	Index
ge-11/1/0.200	CE		
ge-11/1/1.200	CE		
ge-11/1/4.200	CE		
xe-10/0/0.200	CE		
xe-10/2/0.200	CE		

```

Flood route prefix: 0x39/16
Flood route type: RE_FLOOD
Flood route owner: __vs1+vlan200__
Nexthop type: flood
Nexthop index: 427

```

```

  Interfaces Flooding to:

```

Name	Type	NhType	Index
ge-11/1/0.200	CE		
ge-11/1/1.200	CE		
ge-11/1/4.200	CE		
xe-10/0/0.200	CE		

xe-10/2/0.200 CE

Flood route prefix: 0x4180/17
 Flood route type: ALT_ROOT_RT
 Flood route owner: ge-11/1/0.200
 Nexthop type: flood
 Nexthop index: 427

Interfaces Flooding to:

Name	Type	NhType	Index
ge-11/1/0.200	CE		
ge-11/1/1.200	CE		
ge-11/1/4.200	CE		
xe-10/0/0.200	CE		
xe-10/2/0.200	CE		

Flood route prefix: 0x4080/17
 Flood route type: ALT_ROOT_RT
 Flood route owner: ge-11/1/1.200
 Nexthop type: flood
 Nexthop index: 427

Interfaces Flooding to:

Name	Type	NhType	Index
ge-11/1/0.200	CE		
ge-11/1/1.200	CE		
ge-11/1/4.200	CE		
xe-10/0/0.200	CE		
xe-10/2/0.200	CE		

Flood route prefix: 0x4280/17
 Flood route type: ALT_ROOT_RT
 Flood route owner: ge-11/1/4.200
 Nexthop type: flood
 Nexthop index: 427

Interfaces Flooding to:

Name	Type	NhType	Index
ge-11/1/0.200	CE		
ge-11/1/1.200	CE		
ge-11/1/4.200	CE		
xe-10/0/0.200	CE		
xe-10/2/0.200	CE		

Flood route prefix: 0x4480/17
 Flood route type: ALT_ROOT_RT
 Flood route owner: xe-10/0/0.200
 Nexthop type: flood
 Nexthop index: 427

Interfaces Flooding to:

Name	Type	NhType	Index
ge-11/1/0.200	CE		
ge-11/1/1.200	CE		
ge-11/1/4.200	CE		
xe-10/0/0.200	CE		
xe-10/2/0.200	CE		

Flood route prefix: 0x4380/17
 Flood route type: ALT_ROOT_RT
 Flood route owner: xe-10/2/0.200
 Nexthop type: flood
 Nexthop index: 427

Interfaces Flooding to:

Name	Type	NhType	Index
------	------	--------	-------

ge-11/1/0.200	CE
ge-11/1/1.200	CE
ge-11/1/4.200	CE
xe-10/0/0.200	CE
xe-10/2/0.200	CE

show bridge mac-table

Syntax	<pre>show bridge mac-table <brief count detail extensive> <bridge-domain (all <i>bridge-domain-name</i>)> <global-count> <interface <i>interface-name</i>> <mac-address> <vlan-id (all-vlan <i>vlan-id</i>)></pre>
Release Information	Command introduced in Junos OS Release 8.4.
Description	(MX Series routers only) Display Layer 2 MAC address information.
Options	<p>none—Display all learned Layer 2 MAC address information.</p> <p>brief count detail extensive—(Optional) Display the specified level of output.</p> <p>bridge-domain (all <i>bridge-domain-name</i>)—(Optional) Display learned Layer 2 MAC addresses for all bridging domains or for the specified bridging domain.</p> <p>global-count—(Optional) Display the total number of learned Layer 2 MAC addresses on the system.</p> <p>instance <i>instance-name</i>—(Optional) Display learned Layer 2 MAC addresses for the specified routing instance.</p> <p>interface <i>interface-name</i>—(Optional) Display learned Layer 2 MAC addresses for the specified interface.</p> <p>mac-address—(Optional) Display the specified learned Layer 2 MAC address information.</p> <p>vlan-id (all-vlan <i>vlan-id</i>)—(Optional) Display learned Layer 2 MAC addresses for all VLANs or for the specified VLAN.</p>
Additional Information	When Layer 2 protocol tunneling is enabled, the tunneling MAC address 01:00:0c:cd:cd:d0 is installed in the MAC table. When the Cisco Discovery Protocol (CDP), Spanning Tree Protocol (STP), or VLAN Trunk Protocol (VTP) is configured for Layer 2 protocol tunneling on an interface, the corresponding protocol MAC address is installed in the MAC table.
Required Privilege Level	view
List of Sample Output	<pre>show bridge mac-table on page 739 show bridge mac-table brief on page 739 show brief mac-table count on page 740 show bridge mac-table detail on page 740</pre>
Output Fields	Table 188 on page 739 describes the output fields for the show bridge mac-table command. Output fields are listed in the approximate order in which they appear.

Table 188: show bridge mac-table Output fields

Field Name	Field Description
Routing instance	Name of the routing instance.
Bridging domain	Name of the bridging domain.
MAC address	MAC address or addresses learned on a logical interface.
MAC flags	Status of MAC address learning properties for each interface: <ul style="list-style-type: none"> • S—Static MAC address is configured. • D—Dynamic MAC address is configured. • SE—MAC accounting is enabled. • NM—Non-configured MAC.
Logical interface	Name of the logical interface.
MAC count	Number of MAC addresses learned on the specific routing instance or interface.
Learning interface	Name of the logical interface on which the MAC address was learned.
Learning VLAN	VLAN ID of the routing instance or bridge domain in which the MAC address was learned.
Layer 2 flags	Debugging flags signifying that the MAC address is present in various lists.
Epoch	Spanning Tree Protocol epoch number identifying when the MAC address was learned. Used for debugging.
Sequence number	Sequence number assigned to this MAC address. Used for debugging.
Learning mask	Mask of the Packet Forwarding Engines where this MAC address was learned. Used for debugging.
IPC generation	Creation time of the logical interface when this MAC address was learned. Used for debugging.

```

show bridge mac-table user@host> show bridge mac-table
MAC flags (S -static MAC, D -dynamic MAC,
           SE -Statistics enabled, NM -Non configured MAC)

Routing instance : vs1
Bridging domain : vlan100, VLAN : 100
  Learning MAC      MAC      Logical
  VLAN      address  flags   interface
    00:00:00:19:1c:db D      ge-11/0/3.0
    00:00:00:59:3a:2f D      xe-10/2/0.100

```

```

show bridge mac-table user@host> show bridge mac-table brief
brief MAC flags (S -static MAC, D -dynamic MAC,
           SE -Statistics enabled, NM -Non configured MAC)

Routing instance : vs1
Bridging domain : vlan100, VLAN : 100

```

Learning VLAN	MAC address	MAC flags	Logical interface
	00:00:00:19:1c:db	D	ge-11/0/3.0
	00:00:00:59:3a:2f	D	xe-10/2/0.100

show brief mac-table count user@host> **show bridge mac-table count**
 2 MAC address learned in routing instance vs1 bridge domain vlan100

MAC address count per interface within routing instance:

Logical interface	MAC count
ge-11/0/3.0	1
ge-11/1/4.100	0
ge-11/1/1.100	0
ge-11/1/0.100	0
xe-10/2/0.100	1
xe-10/0/0.100	0

MAC address count per learn VLAN within routing instance:

Learn VLAN ID	MAC count
0	2

0 MAC address learned in routing instance vs1 bridge domain vlan200

MAC address count per interface within routing instance:

Logical interface	MAC count
ge-11/1/0.200	0
ge-11/1/1.200	0
ge-11/1/4.200	0
xe-10/0/0.200	0
xe-10/2/0.200	0

MAC address count per learn VLAN within routing instance:

Learn VLAN ID	MAC count
0	0

show bridge mac-table detail user@host> **show bridge mac-table detail**
 MAC address: 00:00:00:19:1c:db
 Routing instance: vs1
 Bridging domain: vlan100
 Learning interface: ge-11/0/3.0 Learning VLAN: 0
 Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
 Epoch: 4 Sequence number: 0
 Learning mask: 0x800 IPC generation: 0

MAC address: 00:00:00:59:3a:2f
 Routing instance: vs1
 Bridging domain: vlan100
 Learning interface: xe-10/2/0.100 Learning VLAN: 0
 Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
 Epoch: 7 Sequence number: 0
 Learning mask: 0x400 IPC generation: 0

show bridge statistics

Syntax	show bridge statistics <bridge-domain <i>domain-name</i>> <instance <i>instance-name</i>>
Release Information	Command introduced in Junos OS Release 8.4.
Description	(MX Series routers only) Display bridge statistics.
Options	none—Display bridge statistics for all bridge domains in all routing instances. bridge-domain <i>domain-name</i> —(Optional) Display statistics for the specified bridge domain. instance <i>instance-name</i> —(Optional) Display statistics for the specified routing instance.
Required Privilege Level	view
List of Sample Output	show bridge statistics on page 741
show bridge statistics	<pre> user@host> show bridge statistics Information for routing instance: Routing instance : __juniper_private1__ Index: 1 Sequence number: 0 MAC limit: 5000 MACs learned: 0 Static MACs learned: 0 Non config Static MACs learned: 0 Handle: 0x829e800 Information for routing instance: Routing instance : vs1 Bridging domain : vlan100 Index: 3 Sequence number: 0 MAC limit: 5120 MACs learned: 2 Static MACs learned: 0 Non config Static MACs learned: 0 Handle: 0x829e400 Flags: Bridge instance, Config defined, VLAN : 100 Local interface: ge-11/0/3.0, Index: 79 Broadcast packets: 1 Broadcast bytes : 65 Multicast packets: 0 Multicast bytes : 0 Flooded packets : 0 Flooded bytes : 0 Unicast packets : 358624489 Unicast bytes : 23310592305 Current MAC count: 1 (Limit 1024) Local interface: ge-11/1/4.100, Index: 84 Broadcast packets: 0 Broadcast bytes : 0 Multicast packets: 0 Multicast bytes : 0 Flooded packets : 0 Flooded bytes : 0 Unicast packets : 0 </pre>

```

    Unicast bytes      : 0
    Current MAC count: 0 (Limit 1024)
Local interface: ge-11/1/1.100, Index: 86
    Broadcast packets: 0
    Broadcast bytes   : 0
    Multicast packets: 0
    Multicast bytes    : 0
    Flooded packets   : 0
    Flooded bytes      : 0
    Unicast packets   : 0
    Unicast bytes      : 0
    Current MAC count: 0 (Limit 1024)
Local interface: ge-11/1/0.100, Index: 87
    Broadcast packets: 0
    Broadcast bytes   : 0
    Multicast packets: 0
    Multicast bytes    : 0
    Flooded packets   : 0
    Flooded bytes      : 0
    Unicast packets   : 0
    Unicast bytes      : 0
    Current MAC count: 0 (Limit 1024)
Local interface: xe-10/2/0.100, Index: 88
    Broadcast packets: 0
    Broadcast bytes   : 0
    Multicast packets: 0
    Multicast bytes    : 0
    Flooded packets   : 0
    Flooded bytes      : 0
    Unicast packets   : 358627393
    Unicast bytes      : 23310781065
    Current MAC count: 1 (Limit 1024)
Local interface: xe-10/0/0.100, Index: 89
    Broadcast packets: 0
    Broadcast bytes   : 0
    Multicast packets: 0
    Multicast bytes    : 0
    Flooded packets   : 0
    Flooded bytes      : 0
    Unicast packets   : 0
    Unicast bytes      : 0
    Current MAC count: 0 (Limit 1024)

```

Information for routing instance:

```

Routing instance : vs1
Bridging domain : vlan200
Index: 4                      Sequence number: 0
MAC limit: 5120                MACs learned: 0
Static MACs learned: 0         Non config Static MACs learned: 0
Handle: 0x829e600
Flags: Bridge instance, Config defined, VLAN : 200
Local interface: ge-11/1/0.200, Index: 90
    Broadcast packets: 0
    Broadcast bytes   : 0
    Multicast packets: 0
    Multicast bytes    : 0
    Flooded packets   : 0
    Flooded bytes      : 0
    Unicast packets   : 0
    Unicast bytes      : 0

```

```
Current MAC count: 0 (Limit 1024)
Local interface: ge-11/1/1.200, Index: 91
Broadcast packets: 0
Broadcast bytes : 0
Multicast packets: 0
Multicast bytes : 0
Flooded packets : 0
Flooded bytes : 0
Unicast packets : 0
Unicast bytes : 0
Current MAC count: 0 (Limit 1024)
Local interface: ge-11/1/4.200, Index: 92
Broadcast packets: 0
Broadcast bytes : 0
Multicast packets: 0
Multicast bytes : 0
Flooded packets : 0
Flooded bytes : 0
Unicast packets : 0
Unicast bytes : 0
Current MAC count: 0 (Limit 1024)
Local interface: xe-10/0/0.200, Index: 93
Broadcast packets: 0
Broadcast bytes : 0
Multicast packets: 0
Multicast bytes : 0
Flooded packets : 0
Flooded bytes : 0
Unicast packets : 0
Unicast bytes : 0
Current MAC count: 0 (Limit 1024)
Local interface: xe-10/2/0.200, Index: 94
Broadcast packets: 4
Broadcast bytes : 260
Multicast packets: 0
Multicast bytes : 0
Flooded packets : 0
Flooded bytes : 0
Unicast packets : 0
Unicast bytes : 0
Current MAC count: 0 (Limit 1024)
```

show l2-learning global-information

Syntax	show l2-learning global-information
Release Information	Command introduced in Junos OS Release 8.4.
Description	(MX Series routers only) Display Layer 2 learning process-related information for the entire router.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show l2-learning global-information on page 744
Output Fields	Table 189 on page 744 describes the output fields for the show l2-learning global-information command. Output fields are listed in the approximate order in which they appear.

Table 189: show l2-learning global-information Output Fields

Field Name	Field Description
MAC aging interval	Configured timeout interval, in seconds, for all MAC table entries.
MAC learning	Status of MAC learning: Enabled or Disabled .
MAC statistics	Status of MAC accounting: Enabled or Disabled .
MAC limit Count	Configured maximum limit on the number of MAC addresses that can be learned.
MAC limit hit flag	Status of the learned MAC limit hit flag: Enabled (the learned MAC exceeds the global MAC limit) or Disabled (the learned MAC does not exceed the global MAC limit).
MAC packet action drop	Status of action to drop packets after the configured MAC address limit is reached: Enabled (packets are dropped) or Disabled (packets are forwarded).

show l2-learning global-information

```
user@host> show l2-learning global-information
Global Configuration:
```

```
MAC aging interval    : 300
MAC learning          : Enabled
MAC statistics         : Disabled
MAC limit Count       : 393215
MAC limit hit flag    : Disabled
MAC packet action drop: Disabled
```

show l2-learning global-mac-count

Syntax	show l2-learning global-mac-count
Release Information	Command introduced in Junos OS Release 9.3.
Description	(MX Series routers only) Display the total number of dynamic and static MAC addresses learned for the entire router.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show l2-learning global-mac-count on page 745
Output Fields	Displays the total number of dynamic and static MAC addresses learned for the entire router.
show l2-learning global-mac-count	<pre>user@host> show l2-learning global-mac-count 100 dynamic and static MAC addresses learned globally</pre>

show l2-learning instance

Syntax	show l2-learning instance
Release Information	(MX Series routers only) Command introduced in Junos OS Release 8.4.
Description	Display Layer 2 learning properties for all the configured routing instances.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show l2-learning instance on page 746
Output Fields	Table 190 on page 746 describes the output fields for the show l2-learning instance command. Output fields are listed in the approximate order in which they appear.

Table 190: show l2-learning instance Output Fields

Field Name	Field Description
Routing Instance	Name of routing instance.
bridging domain	Name of bridging domain.
Index	Number associated with the routing instance or bridging domain.
Logical System	Name of logical system or Default if no logical system is configured.
Routing instance flags	Status of Layer 2 learning properties for each routing instance: <ul style="list-style-type: none"> DL—MAC learning is disabled. SE—MAC accounting is enabled. AD—Packets are dropped after MAC address limit is reached. LH—The maximum number of MAC addresses has been learned on the routing instance. The routing instance is not able to learn any additional MAC addresses.
MAC limit	Maximum number of MAC addresses that can be learned from each interface in the routing instance or bridging domain.

```

show l2-learning instance  user@host> show l2-learning instance
                             Information for routing instance:

                             Routing Instance flags (DL -disable learning, SE -stats enabled,
                             AD -packet action drop, LH -mac limit hit)

Routing Instance  Bridging  Index  Logical  Routing  MAC
Instance          Domain    Index System  flags    limit
__juniper_private1__
vs1                vlan100   3      Default           5120
vs1                vlan200   4      Default           5120

```


show l2-learning interface

Syntax	show l2-learning interface
Release Information	Command introduced in Junos OS Release 8.4.
Description	(MX Series routers only) Display Layer 2 learning information for all the interfaces.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show l2-learning interface on page 748
Output Fields	Table 191 on page 748 describes the output fields for the show l2-learning interface command. Output fields are listed in the approximate order in which they appear.

Table 191: show l2-learning interface Output Fields

Field Name	Field Description
Logical interface	Name of the logical interface.
Index	Index of the interface.
Routing Instance	Number of the routing instance to which the interface belongs.
Interface device	Value of the order in which the Junos OS finds and initializes the interface.
Logical interface flags	Status of Layer 2 learning properties for each interface: <ul style="list-style-type: none"> • DL—MAC learning is disabled. • SE—MAC accounting is enabled. • AD—Packets are dropped after the MAC interface limit is reached. • MAC limit—Maximum number of MAC addresses that can be learned from the interface.

show l2-learning interface user@host> show l2-learning interface
Information for interface family:

Logical Interface flags (DL -disable learning, SE -stats enabled,
AD -packet action drop, LH -mac limit hit)

Logical interface	Index	Routing instance	Interface device	Logical Interface flags	MAC limit
ge-11/0/3.0	79	3	136		1024
ge-11/1/4.100	84	3	150		1024
ge-11/1/1.100	86	3	147		1024
ge-11/1/0.100	87	3	146		1024
xe-10/2/0.100	88	3	144		1024
xe-10/0/0.100	89	3	129		1024
ge-11/1/0.200	90	4	146		1024

ge-11/1/1.200	91	4	147	1024
ge-11/1/4.200	92	4	150	1024
xe-10/0/0.200	93	4	129	1024
xe-10/2/0.200	94	4	144	1024

show mac-rewrite interface

Syntax	show mac-rewrite interface <brief detail> <interface-name>
Release Information	Command introduced in Junos OS Release 9.1.
Description	(MX Series routers only) Display Layer 2 protocol tunneling information.
Options	<p>brief detail—(Optional) Display the specified level of output.</p> <p>interface <i>interface-name</i>—(Optional) Display Layer 2 protocol tunneling information for the specified interface.</p>
Required Privilege Level	view
List of Sample Output	show mac-rewrite interface on page 750
Output Fields	Table 192 on page 750 lists the output fields for the show mac-rewrite interface command. Output fields are listed in the approximate order in which they appear.

Table 192: show mac-rewrite interface Output Fields

Field Name	Field Description	Level of Output
Interface	Name of the interface that has Layer 2 protocol tunneling configured on it.	brief detail
Protocols	Layer 2 protocols being tunneled on this interface: Cisco Discovery Protocol (CDP), Spanning Tree Protocol (STP), or VLAN Trunk Protocol (VTP)	brief detail

```

show mac-rewrite  user@host> show mac-rewrite interface
interface         Interface      Protocols
                    ge-1/0/1        STP VTP CDP

```

Spanning Tree Operational Mode Commands

Table 193 on page 751 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot the Spanning Tree Protocol (STP), Rapid Spanning Tree Protocol (RSTP), and Multiple Spanning Tree Protocol (MSTP). Commands are listed in alphabetical order.

Table 193: STP Operational Mode Commands

Task	Command
Clear STP protocol.	clear spanning-tree protocol-migration
Clear STP statistics.	clear spanning-tree statistics
Display STP bridge domain configuration and status.	show spanning-tree bridge
Display STP interface configuration and status.	show spanning-tree interface
Display MSTP configuration and status.	show spanning-tree mstp configuration
Display STP statistics.	show spanning-tree statistics



NOTE: For more STP-related interface commands, such as **show interface**, see the *Junos Interfaces Command Reference*.

For more STP-related bridging commands, such as **clear bridge**, **show bridge**, and **show l2-learning**, see Layer 2 Bridging and Switching Operational Mode Commands.

For information about how to configure STP, see the *Junos Routing Protocols Configuration Guide*.

clear spanning-tree protocol-migration

Syntax	clear spanning-tree protocol-migration <interface <i>interface-name</i> > <routing-instance <i>routing-instance-name</i> >
Release Information	Command introduced in Junos OS Release 9.0.
Description	Revert from the original IEEE 802.1D Spanning Tree Protocol (STP) back to the Rapid Spanning Tree Protocol after the force-version statement has been removed from the configuration.
Options	none—Reset the STP protocol for all interfaces and all routing instances. interface <i>interface-name</i> —(Optional) Reset the STP protocol for the specified interface only. routing-instance <i>routing-instance-name</i> —(Optional) Reset the STP protocol for a particular routing instance.
Additional Information	For information about the force-version statement, see the <i>Junos Routing Protocols Configuration Guide</i> .
Required Privilege Level	clear
clear spanning-tree protocol-migration	user@host> clear spanning-tree protocol-migration

clear spanning-tree statistics

Syntax	clear spanning-tree statistics <interface <i>interface-name</i> > <logical-system <i>logical-system-name</i> >
Syntax (EX Series Switch)	clear spanning-tree statistics <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 8.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Clear Spanning Tree Protocol statistics.
Options	none—Reset STP counters for all interfaces for all routing instances. interface <i>interface-name</i> —(Optional) Clear STP statistics for the specified interface only. logical-system <i>logical-system-name</i> —(Optional) Clear STP statistics on a particular logical system.
Required Privilege Level	clear
Related Documentation	<ul style="list-style-type: none"> • show spanning-tree statistics on page 766
List of Sample Output	clear stp statistics on page 753
clear stp statistics	user@host> clear stp statistics

show spanning-tree bridge

Syntax	show spanning-tree bridge <brief detail> <msti <i>msti-id</i> > <routing-instance <i>routing-instance-name</i> > <vlan-id <i>vlan-id</i> >
Syntax (EX Series Switch)	show spanning-tree bridge <brief detail> <msti <i>msti-id</i> > <vlan-id <i>vlan-id</i> >
Release Information	Command introduced in Junos OS Release 8.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the configured or calculated Spanning Tree Protocol (STP) parameters.
Options	<p>none—(Optional) Display brief STP bridge information for all multiple spanning-tree instances (MSTIs).</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>msti <i>msti-id</i>—(Optional) Display STP bridge information for the specified MSTI.</p> <p>routing-instance <i>routing-instance-name</i>—(Optional) Display STP bridge information for the specified routing instance.</p> <p>vlan-id <i>vlan-id</i>—(Optional) Display STP bridge information for the specified VLAN.</p>
Required Privilege Level	view
List of Sample Output	<p>show spanning-tree bridge routing-instance on page 755</p> <p>show spanning-tree bridge msti on page 756</p> <p>show spanning-tree bridge vlan-id (MSTP) on page 756</p> <p>show spanning-tree bridge (VSTP) on page 757</p> <p>show spanning-tree bridge vlan-id (VSTP) on page 758</p>
Output Fields	Table 194 on page 754 lists the output fields for the show spanning-tree bridge command. Output fields are listed in the approximate order in which they appear.

Table 194: show spanning-tree bridge Output Fields

Field Name	Field Description
Routing instance name	Name of the routing instance under which the bridge is configured.
Enabled protocol	Spanning Tree Protocol type enabled.
Root ID	Bridge ID of the elected spanning tree root bridge. The bridge ID consists of a configurable bridge priority and the MAC address of the bridge.

Table 194: show spanning-tree bridge Output Fields (*continued*)

Field Name	Field Description
Root cost	Calculated cost to reach the root bridge from the bridge where the command is entered.
Root port	Interface that is the current elected root port for this bridge.
CIST regional root	Bridge ID of the elected MSTP regional root bridge.
CIST internal root cost	Calculated cost to reach the regional root bridge from the bridge where the command is entered.
Hello time	Configured number of seconds between transmissions of configuration bridge protocol data units (BPDUs).
Maximum age	Configured maximum expected arrival time of hello bridge protocol data units (BPDUs).
Forward delay	Configured time an STP bridge port remains in the listening and learning states before transitioning to the forwarding state.
Hop count	Configured maximum number of hops a BPDU can be forwarded in the MSTP region.
Message age	Number of elapsed seconds since the most recent BPDU was received.
Number of topology changes	Total number of STP topology changes detected since the routing device last booted.
Time since last topology change	Number of elapsed seconds since the most recent topology change.
Bridge ID (Local)	Locally configured bridge ID. The bridge ID consists of a configurable bridge priority and the MAC address of the bridge.
Extended system ID	System identifier.
MSTI regional root	Bridge ID of the elected MSTP regional root bridge.

**show spanning-tree
bridge routing-instance**

```
user@host> show spanning-tree bridge routing-instance vs1 detail
```

```
STP bridge parameters
Routing instance name
Enabled protocol
```

```
: vs1
: MSTP
```

```
STP bridge parameters for CIST
```

```
Root ID           : 32768.00:13:c3:9e:c8:80
Root cost         : 0
Root port         : xe-10/2/0
CIST regional root : 32768.00:13:c3:9e:c8:80
CIST internal root cost : 22000
Hello time        : 2 seconds
```

```

Maximum age           : 20 seconds
Forward delay         : 15 seconds
Hop count             : 18
Message age           : 0
Number of topology changes : 1
Time since last topology change : 1191 seconds
Local parameters
  Bridge ID           : 32768.00:90:69:0b:7f:d1
  Extended system ID  : 1

```

```

STP bridge parameters for MSTI 1
MSTI regional root    : 32769.00:13:c3:9e:c8:80
Root cost              : 22000
Root port              : xe-10/2/0
Hello time             : 2 seconds
Maximum age           : 20 seconds
Forward delay         : 15 seconds
Hop count             : 18
Number of topology changes : 1
Time since last topology change : 1191 seconds
Local parameters
  Bridge ID           : 32769.00:90:69:0b:7f:d1
  Extended system ID  : 1

```

```

STP bridge parameters for MSTI 2
MSTI regional root    : 32770.00:13:c3:9e:c8:80
Root cost              : 22000
Root port              : xe-10/2/0
Hello time             : 2 seconds
Maximum age           : 20 seconds
Forward delay         : 15 seconds
Hop count             : 18
Number of topology changes : 1
Time since last topology change : 1191 seconds
Local parameters
  Bridge ID           : 32770.00:90:69:0b:7f:d1
  Extended system ID  : 1

```

show spanning-tree bridge msti user@host> **show spanning-tree bridge msti 1 routing-instance vs1 detail**

```

STP bridge parameters
Routing instance name  : vs1
Enabled protocol      : MSTP

STP bridge parameters for MSTI 1
MSTI regional root    : 32769.00:13:c3:9e:c8:80
Root cost              : 22000
Root port              : xe-10/2/0
Hello time             : 2 seconds
Maximum age           : 20 seconds
Forward delay         : 15 seconds
Hop count             : 18
Number of topology changes : 1
Time since last topology change : 1191 seconds
Local parameters
  Bridge ID           : 32769.00:90:69:0b:7f:d1
  Extended system ID  : 1

```

show spanning-tree bridge vlan-id (MSTP) user@host> **show spanning-tree bridge vlan-id 1 101 routing-instance vs1 detail**

```

STP bridge parameters
Routing instance name  : vs1
Enabled protocol      : MSTP

```

```

STP bridge parameters for CIST
  Root ID          : 32768.00:13:c3:9e:c8:80
  Root cost        : 0
  Root port        : xe-10/2/0
  CIST regional root : 32768.00:13:c3:9e:c8:80
  CIST internal root cost : 22000
  Hello time       : 2 seconds
  Maximum age      : 20 seconds
  Forward delay    : 15 seconds
  Hop count        : 18
  Message age      : 0
  Number of topology changes : 0
  Local parameters
    Bridge ID       : 32768.00:90:69:0b:7f:d1
    Extended system ID : 1
    Hello time      : 2 seconds
    Maximum age     : 20 seconds
    Forward delay   : 15 seconds
    Path cost method : 32 bit
    Maximum hop count : 20

```

```

show spanning-tree bridge (VSTP) user@host> show spanning-tree bridge
STP bridge parameters
  Routing instance name : GLOBAL
  Enabled protocol      : RSTP
  Root ID               : 28672.00:90:69:0b:3f:d0
  Hello time            : 2 seconds
  Maximum age           : 20 seconds
  Forward delay         : 15 seconds
  Message age           : 0
  Number of topology changes : 58
  Time since last topology change : 14127 seconds
  Local parameters
    Bridge ID           : 28672.00:90:69:0b:3f:d0
    Extended system ID   : 0

STP bridge parameters for bridge VLAN 10
  Root ID               : 28672.00:90:69:0b:3f:d0
  Hello time            : 2 seconds
  Maximum age           : 20 seconds
  Forward delay         : 15 seconds
  Message age           : 0
  Number of topology changes : 58
  Time since last topology change : 14127 seconds
  Local parameters
    Bridge ID           : 28672.00:90:69:0b:3f:d0
    Extended system ID   : 0

STP bridge parameters for bridge VLAN 20
  Root ID               : 28672.00:90:69:0b:3f:d0
  Hello time            : 2 seconds
  Maximum age           : 20 seconds
  Forward delay         : 15 seconds
  Message age           : 0
  Number of topology changes : 58
  Time since last topology change : 14127 seconds
  Local parameters

```

```
Bridge ID : 28672.00:90:69:0b:3f:d0
Extended system ID : 0
```

```
show spanning-tree bridge vlan-id (VSTP) user@host> show spanning-tree bridge vlan-id 10
STP bridge parameters
Routing instance name : GLOBAL
Enabled protocol : RSTP

STP bridge parameters for VLAN 10
Root ID : 28672.00:90:69:0b:3f:d0
Hello time : 2 seconds
Maximum age : 20 seconds
Forward delay : 15 seconds
Message age : 0
Number of topology changes : 58
Time since last topology change : 14127 seconds
Local parameters
Bridge ID : 28672.00:90:69:0b:3f:d0
Extended system ID : 0
```

show spanning-tree interface

Syntax	show spanning-tree interface <brief detail> <msti <i>msti-id</i> > <routing-instance <i>routing-instance-name</i> > <vlan-id <i>vlan-id</i> >
Syntax (EX Series Switch)	show spanning-tree interface <brief detail> <msti <i>msti-id</i> > <vlan-id <i>vlan-id</i> >
Release Information	Command introduced in Junos OS Release 8.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the configured or calculated interface-level STP parameters.
Options	<p>none—Display brief STP interface information.</p> <p>brief detail—(Optional) Display the specified level of output.</p> <p>msti <i>msti-id</i>—(Optional) Display STP interface information for the specified MST instance.</p> <p>routing-instance <i>routing-instance-name</i>—(Optional) Display STP interface information for the specified routing instance.</p> <p>vlan-id <i>vlan-id</i>—(Optional) Display STP interface information for the specified VLAN.</p>
Required Privilege Level	view
List of Sample Output	<p>show spanning-tree interface on page 760</p> <p>show spanning-tree interface detail on page 761</p> <p>show spanning-tree interface msti on page 762</p> <p>show spanning-tree interface vlan-id 101 on page 763</p> <p>show spanning-tree interface (VSTP) on page 763</p> <p>show spanning-tree interface vlan-id (VSTP) on page 763</p>
Output Fields	Table 195 on page 759 lists the output fields for the show spanning-tree interface command. Output fields are listed in the approximate order in which they appear.

Table 195: show spanning-tree Interface Output Fields

Field Name	Field Description
Interface name	Interface configured to participate in the STP, RSTP, VSTP, or MSTP instance.
Port ID	Logical interface identifier configured to participate in the MSTP or VSTP instance.

Table 195: show spanning-tree Interface Output Fields (*continued*)

Field Name	Field Description
Designated port ID	Port ID of the designated port for the LAN segment to which this interface is attached.
Designated bridge ID	Bridge ID of the designated bridge for the LAN segment to which this interface is attached.
Port Cost	Configured cost for the interface.
Port State	STP port state: forwarding (FWD), blocking (BLK), listening, learning, or disabled.
Port Role	MSTP, VSTP, or RSTP port role: designated (DESG), backup (BKUP), alternate (ALT), root, or Root Prevented (Root-Prev).
Link type	MSTP, VSTP, or RSTP link type. Shared or point-to-point (pt-pt) and edge or nonedge.
Alternate	Identifies the interface as an MSTP, VSTP, or RSTP alternate root port (Yes) or nonalternate root port (No).
Boundary Port	Identifies the interface as an MSTP regional boundary port (Yes) or nonboundary port (No).

**show spanning-tree
interface**

```
user@host> show spanning-tree interface routing-instance vs1 detail
Spanning tree interface parameters for instance 0
```

Interface	Port ID	Designated port ID	Designated bridge ID	Port Cost	State	Role
ae1	128:1	128:1	32768.0090690b47d1	1000	FWD	DESG
ge-2/1/2	128:2	128:2	32768.0090690b47d1	20000	FWD	DESG
ge-2/1/5	128:3	128:3	32768.0090690b47d1	29999	FWD	DESG
ge-2/2/1	128:4	128:26	32768.0013c39ec880	20000	FWD	ROOT
xe-9/2/0	128:5	128:5	32768.0090690b47d1	2000	FWD	DESG
xe-9/3/0	128:6	128:6	32768.0090690b47d1	2000	FWD	DESG

```
Spanning tree interface parameters for instance 1
```

Interface	Port ID	Designated port ID	Designated bridge ID	Port Cost	State	Role
ae1	128:1	128:1	32769.0090690b47d1	1000	FWD	DESG
ge-2/1/2	128:2	128:2	32769.0090690b47d1	20000	FWD	DESG
ge-2/1/5	128:3	128:3	32769.0090690b47d1	29999	FWD	DESG
ge-2/2/1	128:4	128:26	32769.0013c39ec880	20000	FWD	ROOT
xe-9/2/0	128:5	128:5	32769.0090690b47d1	2000	FWD	DESG
xe-9/3/0	128:6	128:6	32769.0090690b47d1	2000	FWD	DESG

```
Spanning tree interface parameters for instance 2
```

Interface	Port ID	Designated port ID	Designated bridge ID	Port Cost	State	Role
ae1	128:1	128:1	32770.0090690b47d1	1000	FWD	DESG
ge-2/1/2	128:2	128:2	32770.0090690b47d1	20000	FWD	DESG

ge-2/1/5	128:3	128:3	32770.0090690b47d1	29999	FWD	DESG
ge-2/2/1	128:4	128:26	32770.0013c39ec880	20000	FWD	ROOT
xe-9/2/0	128:5	128:5	32770.0090690b47d1	2000	FWD	DESG
xe-9/3/0	128:6	128:6	32770.0090690b47d1	2000	FWD	DESG

```
show spanning-tree user@host> show spanning-tree interface routing-instance vs1 detail
interface detail Spanning tree interface parameters for instance 0
```

```
Interface name      : ae1
Port identifier     : 128.1
Designated port ID  : 128.1
Port cost           : 1000
Port state          : Forwarding
Designated bridge ID : 32768.00:90:69:0b:47:d1
Port role           : Designated
Link type           : Pt-Pt/NONEDGE
Boundary port       : No
```

```
Interface name      : ge-2/1/2
Port identifier     : 128.2
Designated port ID  : 128.2
Port cost           : 20000
Port state          : Forwarding
Designated bridge ID : 32768.00:90:69:0b:47:d1
Port role           : Designated
Link type           : Pt-Pt/NONEDGE
Boundary port       : No
```

```
Interface name      : ge-2/1/5
Port identifier     : 128.3
Designated port ID  : 128.3
Port cost           : 29999
Port state          : Forwarding
Designated bridge ID : 32768.00:90:69:0b:47:d1
Port role           : Designated
Link type           : Pt-Pt/NONEDGE
Boundary port       : No
```

```
Interface name      : ge-2/2/1
Port identifier     : 128.4
Designated port ID  : 128.26
Port cost           : 20000
Port state          : Forwarding
Designated bridge ID : 32768.00:13:c3:9e:c8:80
Port role           : Root
Link type           : Pt-Pt/NONEDGE
Boundary port       : No
```

```
Interface name      : xe-9/2/0
Port identifier     : 128.5
Designated port ID  : 128.5
Port cost           : 2000
Port state          : Forwarding
Designated bridge ID : 32768.00:90:69:0b:47:d1
Port role           : Designated
Link type           : Pt-Pt/NONEDGE
Boundary port       : No
```

```
Interface name      : xe-9/3/0
Port identifier     : 128.6
Designated port ID  : 128.6
```

```

Port cost           : 2000
Port state          : Forwarding
Designated bridge ID : 32768.00:90:69:0b:47:d1
Port role           : Designated
Link type           : Pt-Pt/NONEDGE
Boundary port       : No

```

Spanning tree interface parameters for instance 1

```

Interface name      : ae1
Port identifier     : 128.1
Designated port ID  : 128.1
Port cost           : 1000
Port state          : Forwarding
Designated bridge ID : 32768.00:90:69:0b:47:d1
Port role           : Designated
Link type           : Pt-Pt/NONEDGE
Boundary port       : No

```

```

Interface name      : ge-2/1/2
Port identifier     : 128.2
Designated port ID  : 128.2
Port cost           : 20000
Port state          : Forwarding
Designated bridge ID : 32768.00:90:69:0b:47:d1
Port role           : Designated
Link type           : Pt-Pt/NONEDGE
Boundary port       : No

```

```

Interface name      : ge-2/1/5
Port identifier     : 128.3
Designated port ID  : 128.3
Port cost           : 29999
Port state          : Forwarding
Designated bridge ID : 32768.00:90:69:0b:47:d1
Port role           : Designated
Link type           : Pt-Pt/NONEDGE
Boundary port       : No

```

```

Interface name      : ge-2/2/1
Port identifier     : 128.4
Designated port ID  : 128.26
Port cost           : 20000
Port state          : Forwarding
Designated bridge ID : 32768.00:13:c3:9e:c8:80
Port role           : Root
Link type           : Pt-Pt/NONEDGE
Boundary port       : No

```

...

show spanning-tree interface msti user@host> **show spanning-tree interface msti 1 routing-instance vs1 detail**
Spanning tree interface parameters for instance 1

Interface	Port ID	Designated port ID	Designated bridge ID	Port Cost	State	Role
xe-7/0/0	128:1	128:1	32769.0090690b4fd1	2000	FWD	DESG
ge-5/1/0	128:2	128:2	32769.0090690b4fd1	20000	FWD	DESG
ge-5/1/1	128:3	128:3	32769.0090690b4fd1	20000	FWD	DESG
ae1	128:4	128:1	32769.0090690b47d1	10000	BLK	ALT

ge-5/1/4	128:5	128:3	32769.0090690b47d1	20000	BLK	ALT
xe-7/2/0	128:6	128:6	32769.0090690b47d1	2000	FWD	ROOT

show spanning-tree interface vlan-id 101 user@host> **show spanning-tree interface vlan-id 101 routing-instance vs1 detail**
Spanning tree interface parameters for instance 0

Interface	Port ID	Designated port ID	Designated bridge ID	Port Cost	State	Role
ge-11/0/5	128:1	128:1	32768.0090690b7fd1	20000	FWD	DESG
ge-11/0/6	128:2	128:1	32768.0090690b7fd1	20000	BLK	BKUP
ge-11/1/0	128:3	128:2	32768.0090690b4fd1	20000	BLK	ALT
ge-11/1/1	128:4	128:3	32768.0090690b4fd1	20000	BLK	ALT
ge-11/1/4	128:5	128:1	32768.0090690b47d1	20000	BLK	ALT
xe-10/0/0	128:6	128:5	32768.0090690b4fd1	2000	BLK	ALT
xe-10/2/0	128:7	128:4	32768.0090690b47d1	2000	FWD	ROOT

show spanning-tree interface (VSTP) user@host> **show spanning-tree interface**
Spanning tree interface parameters for instance 0

Interface	Port ID	Designated port ID	Designated bridge ID	Cost	State	Role
ge-1/0/1	128:1	128:1	28672.0090690b3fe0	20000	FWD	DESG
ge-1/0/2	128:2	128:2	28672.0090690b3fe0	20000	FWD	DESG

Spanning tree interface parameters for VLAN 10

Interface	Port ID	Designated port ID	Designated bridge ID	Cost	State	Role
ge-1/0/1	128:1	128:1	28672.0090690b3fe0	20000	FWD	DESG
ge-1/0/2	128:2	128:2	28672.0090690b3fe0	20000	FWD	DESG

Spanning tree interface parameters for VLAN 20

Interface	Port ID	Designated port ID	Designated bridge ID	Cost	State	Role
ge-1/0/1	128:1	128:1	28672.0090690b3fe0	20000	FWD	DESG
ge-1/0/2	128:2	128:2	28672.0090690b3fe0	20000	FWD	DESG

show spanning-tree interface vlan-id (VSTP) user@host> **show spanning-tree interface vlan-id 10**
Spanning tree interface parameters for VLAN 10

Interface	Port ID	Designated port ID	Designated bridge ID	Cost	State	Role
ge-1/0/1	128:1	128:1	28672.0090690b3fe0	20000	FWD	DESG
ge-1/0/2	128:2	128:2	28672.0090690b3fe0	20000	FWD	DESG

show spanning-tree mstp configuration

Syntax	show spanning-tree mstp configuration <brief detail> <routing-instance <i>routing-instance-name</i> >
Syntax (EX Series Switch)	show spanning-tree mstp configuration <brief detail>
Release Information	Command introduced in Junos OS Release 8.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display the MSTP configuration.
Options	none—Display MSTP configuration information. brief detail—(Optional) Display the specified level of output. routing-instance <i>routing-instance-name</i> —(Optional) Display MSTP configuration information for the specified routing instance.
Required Privilege Level	view
List of Sample Output	show spanning-tree mstp configuration on page 764
Output Fields	Table 196 on page 764 lists the output fields for the show spanning-tree mstp configuration command. Output fields are listed in the approximate order in which they appear.

Table 196: show spanning-tree mstp configuration Output Fields

Field Name	Field Description
Context id	Internally generated identifier.
Region name	MSTP region name carried in the MSTP BPDUs.
Revision	Revision number of the MSTP configuration.
Configuration digest	Numerical value derived from the VLAN-to-instance mapping table.
MSTI ID	MST instance identifier.
Member VLANs	VLAN identifiers associated with the MSTI.

```

show spanning-tree mstp configuration
user@host> show spanning-tree mstp configuration routing-instance vs1 detail
MSTP configuration information
Context identifier      : 1
Region name            : henry
Revision               : 3
Configuration digest    : 0x6da4b5c4fd587757eef35675365e1

```

MSTI	Member VLANs
0	0-99, 101-199, 201-4094
1	100
2	200

show spanning-tree statistics

Syntax	show spanning-tree statistics <brief detail > <interface <i>interface-name</i> > <routing-instance <i>routing-instance-name</i> >
Syntax (EX Series Switch)	show spanning-tree statistics <brief detail > <interface <i>interface-name</i> >
Release Information	Command introduced in Junos OS Release 8.4. Command introduced in Junos OS Release 9.0 for EX Series switches.
Description	Display STP statistics.
Options	none—Display brief STP statistics. brief detail—(Optional) Display the specified level of output. interface <i>interface-name</i> —(Optional) Display STP statistics for the specified interface. routing-instance <i>routing-instance-name</i> —(Optional) Display STP statistics for the specified routing instance.
Required Privilege Level	view
List of Sample Output	show spanning-tree statistics routing-instance on page 767 show spanning-tree statistics interface on page 767
Output Fields	Table 197 on page 766 lists the output fields for the show spanning-tree statistics command. Output fields are listed in the approximate order in which they appear.

Table 197: show spanning-tree statistics Output Fields

Field Name	Field Description
Message type	Type of message being counted.
BPDUs sent	Total number of BPDUs sent.
BPDUs received	Total number of BPDUs received.
BPDUs sent in last 5 secs	Number of BPDUs sent in the most recent 5-second period.
BPDUs received in last 5 secs	Number of BPDUs received in the most recent 5-second period.
Interface	Interface for which the statistics are being displayed.
Next BPDU transmission	Number of seconds until the next BPDU is scheduled to be sent.

show spanning-tree user@host> show spanning-tree statistics routing-instance vs1 detail

statistics Routing instance level STP statistics
routing-instance Message type : bpdus
BPDUs sent : 121
BPDUs received : 537
BPDUs sent in last 5 secs : 5
BPDUs received in last 5 secs : 27

show spanning-tree user@host> show spanning-tree statistics interface ge-11/1/4 routing-instance vs1 detail

statistics interface	Interface	BPDUs sent	BPDUs received	Next BPDU transmission
	ge-11/1/4	7	190	0

PART 5

VPNs

- [VPN Operational Mode Commands on page 771](#)

VPN Operational Mode Commands

Table 198 on page 771 summarizes the command-line interface (CLI) commands you can use to monitor and troubleshoot Layer 2 circuits, Layer 2 virtual private networks (VPNs), virtual private LAN service (VPLS), and Layer 3 VPNs. Commands are listed in alphabetical order.

Table 198: Layer 2 Circuit, Layer 2 VPN, and VPLS Operational Mode Commands

Task	Command
Clear MAC address entries from the VPLS table.	clear vpls mac-address
Clear MAC addresses from the VPLS table.	clear vpls mac-table
Manually trigger a switch from the active pseudowire to the redundant pseudowire.	request l2circuit-switchover
Display Layer 3 dynamic tunnel database information.	show dynamic-tunnels database
Display ingress replication provider tunnel information.	show ingress-replication mvpn
Display Layer 2 circuit information.	show l2circuit connections
Display Layer 2 VPN information.	show l2vpn connections
Display multicast VPN c-multicast route information.	show mvpn c-multicast
Display multicast VPN instance information.	show mvpn instance
Display multicast VPN neighbor information.	show mvpn neighbor
Display virtual private LAN service (VPLS) information.	show vpls connections
Display the pending events in the level 2 address learning process (l2ald) routing socket code (rtsock) update queue.	show vpls flood event-queue
Display VPLS information related to the level 2 address learning process for the specified routing instance.	show vpls flood instance

Table 198: Layer 2 Circuit, Layer 2 VPN, and VPLS Operational Mode Commands (*continued*)

Task	Command
Display VPLS route information related to the level 2 address learning process.	show vpls flood route
Display learned VPLS MAC address information.	show vpls mac-table
Display VPLS statistics.	show vpls statistics



NOTE: For information about how to configure Layer 2 circuits, Layer 2 VPNs, VPLS, and Layer 3 VPNs, see the *Junos VPNs Configuration Guide*.

clear vpls mac-address

Syntax	clear vpls mac-address <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)> < <i>mac-address</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	(T Series and M Series routers, except for the M160 router) Clear media access control (MAC) address entries from the virtual private LAN service (VPLS) table.
Options	<p>none—Clear all MAC address entries from the VPLS table for all routing instances.</p> <p>instance <i>instance-name</i>—(Optional) Clear all MAC address entries for a VPLS instance from the VPLS table.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><i>mac-address</i>—(Optional) Clear a specific MAC address in a VPLS instance from the VPLS table.</p>
Required Privilege Level	maintenance
List of Sample Output	clear vpls mac-address on page 773
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear vpls mac-address	user@host> clear vpls mac-address

clear vpls mac-table

Syntax	<code>clear vpls mac-table</code> <code><instance <i>instance-name</i>></code> <code><interface <i>interface-name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><mac-address></code> <code><vlan-id></code>
Release Information	Command introduced before Junos OS Release 9.5.
Description	(MX Series routers) Clear media access control (MAC) addresses from the virtual private LAN service (VPLS) MAC table.
Options	<p><code>none</code>—Clear all MAC addresses from the VPLS table for all routing instances.</p> <p><code>instance <i>instance-name</i></code>—(Optional) Clear all MAC addresses for a VPLS instance from the VPLS table.</p> <p><code>interface <i>interface-name</i></code>—(Optional) Clear all MAC addresses for a VPLS interface from the VPLS table.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><code>mac-address</code>—(Optional) Clear a specific MAC address in a VPLS instance from the VPLS table.</p> <p><code>vlan-id</code>—(Optional) Clear MAC addresses on a specified VLAN (0 through 4095).</p>
Required Privilege Level	maintenance
List of Sample Output	clear vpls mac-table on page 774
Output Fields	When you enter this command, you are provided feedback on the status of your request.
clear vpls mac-table	<code>user@host> clear vpls mac-table</code>

request l2circuit-switchover

Syntax	request l2circuit-switchover <logical-system (all logical-system-name) > <neighbor <i>address</i> > <virtual-circuit-id <i>identifier</i> >
Release Information	Command introduced in Junos OS Release 9.2.
Description	Manually trigger a switch from the active pseudowire to the redundant pseudowire. This command can be useful when performing network maintenance.
Options	<p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor <i>address</i>—(Optional) Trigger a switch of all of the active pseudowire connections with the specified neighbor to their respective redundant pseudowires.</p> <p>virtual-circuit-id <i>identifier</i>—(Optional) Trigger a switch from the active pseudowire connection of the specified Layer 2 circuit to its redundant pseudowire.</p>
Required Privilege Level	maintenance
List of Sample Output	request l2circuit-switchover virtual-circuit-id on page 775
Output Fields	When you enter this command, you are provided feedback on the status of your request.
request l2circuit-switchover virtual-circuit-id	user@host>request l2circuit-switchover virtual-circuit-id 12

show dynamic-tunnels database

Syntax	show dynamic-tunnels database <destination> <logical-system (all <i>logical-system-name</i>)> <table <i>routing-table-name</i> >
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display dynamic tunnel database information.
Options	<p>none—Display dynamic tunnel database information for all destinations and routing tables.</p> <p><i>destination</i>—(Optional) Display database entries for the specified IP address (with optional destination prefix length) only.</p> <p><i>logical-system</i> (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>table <i>routing-table-name</i>—(Optional) Display database entries for the specified table only.</p>
Required Privilege Level	view
List of Sample Output	<p>show dynamic-tunnels database (Tunnel Is Up) on page 777</p> <p>show dynamic-tunnels database (No Tunnel PIC) on page 777</p> <p>show dynamic-tunnels database (Tunnel Is Expiring) on page 777</p> <p>show dynamic-tunnels database (Destination Specified) on page 777</p>
Output Fields	Table 199 on page 776 lists the output fields for the show dynamic-tunnels database command. Output fields are listed in the approximate order in which they appear.

Table 199: show dynamic-tunnels database Output Fields

Field Name	Field Description
Table	Name of the routing table (for example, inet.0).
Destination-network	Destination IP address and subnet.
Tunnel to	Destination IP address and prefix of the tunnel.
State	State of the tunnel: Up , Up (expires in <i>nn:nn:nn</i>seconds) , or Dn (down).
Reference count	Number of routes across the dynamic tunnel that are currently being resolved.
Next-hop type	Type of tunnel: GRE.
Source address	Source IP address of the tunnel.

Table 199: show dynamic-tunnels database Output Fields (*continued*)

Field Name	Field Description
Next-hop	IP address of the destination interface.
State	State of the destination interface: Up, Dn, or Dn (no tunnel pic).

```

show dynamic-tunnels database (Tunnel Is Up)
user@host> show dynamic-tunnels database
Table: inet.3
Destination-network: 10.255.120.94/32
Tunnel to: 10.255.120.94/32 State: Up
Reference count: 2
Next-hop type: gre
Source address: 10.255.120.92
Next hop: gr-4/3/0.32769
State: Up

show dynamic-tunnels database (No Tunnel PIC)
user@host> show dynamic-tunnels database
Table: inet.3
Destination-network: 10.255.120.94/32
Tunnel to: 10.255.120.94/32 State: Dn
Reference count: 2
Next-hop type: gre
Source address: 10.255.120.92
State: Dn (no tunnel pic)

show dynamic-tunnels database (Tunnel Is Expiring)
user@host> show dynamic-tunnels database
Table: inet.3
Destination-network: 10.255.120.94/32
Tunnel to: 10.255.120.94/32 State: Up (expires in 00:14:56 seconds)
Reference count: 0
Next-hop type: gre
Source address: 10.255.120.92
Next hop: gr-4/3/0.32769
State: Up

show dynamic-tunnels database (Destination Specified)
user@host> show dynamic-tunnels database 10.255.120.94
Table: inet.3
Destination-network: 10.255.120.94/32
Tunnel to: 10.255.120.94/32 State: Up
Reference count: 2
Next-hop type: gre
Source address: 10.255.120.92
Next hop: gr-4/3/0.32769
State: Up

```

show ingress-replication mvpn

Syntax show ingress-replication mvpn

Release Information Command introduced in Junos OS Release 10.4.

Description Display the state and configuration of the ingress replication tunnels created for the MVPN application when using the **mpls-internet-multicast** routing instance type.

Required Privilege Level View

List of Sample Output show ingress-replication mvpn on page 778

Output Fields Table 200 on page 778 lists the output fields for the **show ingress-replication mvpn** command. Output fields are listed in the approximate order in which they appear.

Table 200: show ingress-replication mvpn

Field Name	Field Description
Ingress Tunnel	Identifies the MVPN ingress replication tunnel.
Application	Identifies the application (MVPN).
Unicast tunnels	List of unicast tunnels in use.
Leaf address	Address of the tunnel.
Tunnel type	Identifies the unicast tunnel type.
Mode	Indicates whether the tunnel was created as a new tunnel for the ingress replication, or if an existing tunnel was used.
State	Indicates whether the tunnel is Up or Down.

```

show user@host> show ingress-replication mvpn
ingress-replication Ingress Tunnel: mvpn:11
mvpn      Application: MVPN
            Unicast tunnels
              Leaf Address      Tunnel-type      Mode      State
              10.255.245.2      P2P LSP        New       Up
              10.255.245.4      P2P LSP        New       Up
            Ingress Tunnel: mvpn:2
            Application: MVPN
            Unicast tunnels
              Leaf Address      Tunnel-type      Mode      State
              10.255.245.2      P2P LSP        Existing  Up
  
```


show l2circuit connections

Syntax	<pre>show l2circuit connections <brief extensive summary> <down up up-down> <history> <interface <i>interface-name</i>> <logical-system (all <i>logical-system-name</i>)> <neighbor <i>neighbor</i>> <status></pre>
Release Information	<p>Command introduced before Junos OS Release 7.4.</p> <p>Display enhancements in Junos OS Release 9.6.</p> <p>Display enhancements in Junos OS Release 10.2.</p>
Description	Display status information about Layer 2 virtual circuits from the local provider edge (PE) router to its neighbors.
Options	<p>none—Display standard information about Layer 2 virtual circuits on all interfaces for all neighbors.</p> <p>brief extensive summary—(Optional) Display the specified level of output. Use history to display information about connection history. Use status to display information about the connection and interface status.</p> <p>down up up-down—(Optional) Display nonoperational, operational, or both kinds of connections.</p> <p>history—(Optional) Display information about connection history.</p> <p>interface <i>interface-name</i>—(Optional) Show all Layer 2 virtual circuits on an interface.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p>neighbor <i>neighbor</i>—(Optional) IP address of a specific neighbor.</p> <p>status—(Optional) Display information about the connection and interface status.</p>
Required Privilege Level	view
List of Sample Output	<p>show l2circuit connections on page 782</p> <p>show l2circuit connections extensive on page 783</p>
Output Fields	Table 201 on page 780 lists the output fields for the show l2circuit connections command. Output fields are listed in the approximate order in which they appear.

Table 201: show l2circuit connections Output Fields

Field Name	Field Description
Layer-2 Circuit Connections	Displays the legends for connection and interface status.
Neighbor	Remote PE neighbor.
Interface	Logical PE-to-CE interface on which the virtual circuit is configured.
Type	VC type: rmt (remote) or loc (local).
Legend for connection status (St)	<p>Status of the virtual circuit connection:</p> <ul style="list-style-type: none"> • EI—The local virtual circuit interface is configured with an encapsulation that is not supported. • MM—The two routers do not agree on an MTU value, which causes an MTU mismatch. • EM—The encapsulation type received on this virtual circuit from the neighbor does not match the local virtual circuit interface encapsulation type. • CM—The two routers do not agree on a control word, which causes a control word mismatch. • VM—The remote and local VLAN IDs do not match across the Layer 2 circuit. • OL—No advertisement has been received for this virtual circuit from the neighbor. There is no outgoing label available for use by this virtual circuit. • NC—The interface is not configured as a CCC or TCC interface. • BK—The virtual circuit has switched to a backup connection. • CB—The remote PE router is advertising a different cell bundle from that configured on the local PE router. • LD—The connection to the local site is signaled down, because the CE-facing interface to the local site is down. • RD—The remote neighbor is down. It has signaled a problem using the pseudowire status code. • NP—The router detects that interface hardware is not present. The hardware may be offline, a PIC may not be of the desired type, or the interface may be configured in a different routing instance. • Dn—The virtual circuit is down. • VC-Dn—The virtual circuit is down because there is no tunnel LSP from the local PE router to the neighbor. • UP—The virtual circuit is operational. • CF—The router cannot find enough bandwidth to the remote router to satisfy the Layer 2 circuit bandwidth requirement. • IB—The bit rate is incompatible for Time Division Multiplexing (TDM). • TDM—TDM is not configured correctly. • ST—The virtual circuit has been switched to a standby connection. • SP—The virtual circuit connection is using a static pseudowire. • RS—The remote site is in a standby state. • XX—The virtual circuit is down for an unknown reason. This is a programming error.
Time last up	Date and time the virtual circuit was last operational.

Table 201: show l2circuit connections Output Fields (*continued*)

Field Name	Field Description
# Up trans	Number of times the virtual circuit came up.
<i>local-interface-name</i>	Name of the local PE-to-CE interface.
Status	Status of the local interface.
Up	Interface is operational.
Dn	Interface is not operational.
NP	Not present. Interface does not exist.
DS	Disabled. Interface has been administratively disabled.
WE	Wrong encapsulation. The interface is not configured as CCC.
UN	Interface status is initialized.
Encapsulation	Encapsulation of the local interface.
Remote PE	Prefix of the remote PE router.
Negotiated control-word	Whether the use of the control word has been negotiated for this virtual circuit: Yes (Null) or No .
Incoming label	Label used by the remote side of the virtual circuit to send packets destined to the local side. This label is routed to the local virtual circuit interface.
Outgoing label	Label used by the local side of the virtual circuit to send packets to the remote side of the virtual circuit. Packets originated on the local virtual circuit interface are encapsulated with this label before being placed on the tunnel LSP to the neighbor for this virtual circuit. This label is allocated by the neighbor and is used in demultiplexing incoming packets destined for this virtual circuit.
Negotiated PW status TLV	Displays the pseudowire status type, length, and value (TLV). TLVs are a method of encoding variable-length or optional information. If the pseudowire status TLV is used, the corresponding local or neighbor PE router status code is also displayed.
local PW status code	If the pseudowire status TLV is used, displays the local PE router status code.
Neighbor PW status code	If the pseudowire status TLV is used, displays the neighbor PE router status code.
Local interface	Name of the local interface used for the Layer 2 circuit connection.
Status	Status of the local interface (Up or Down).

Table 201: show l2circuit connections Output Fields (*continued*)

Field Name	Field Description
Encapsulation	Encapsulation configured for the local interface.
Connection protection	Whether or not connection protection is configured for the Layer 2 circuit to the neighbor: Yes or No .
VC bandwidth	Bandwidth requirement of the Layer 2 circuit.
Time	Time at which the event occurred.
Connection History	Event types logged in history. <ul style="list-style-type: none"> • loc intf up—Local virtual circuit interface went up. • loc intf down—Local virtual circuit interface went down. • In lbl Update—Incoming label has been updated. • Out lbl Update—Outgoing label has been updated. • PE route changed—Route to PE router has been updated. • PE route down—Route to PE router is down. • rmt side marked—Remote side is marked. • VC Dn—Remote side indicated that its end of the virtual circuit is down (if the tunnel LSP from the remote side to the local side is down). • status update timer—Status update timer processing. It computes the state of the virtual circuit, and determines whether it should be advertised to or withdrawn from the remote side.

show l2circuit connections

```
user@host> show l2circuit connections
Layer-2 Circuit Connections:
```

Legend for connection status (St)

```
EI -- encapsulation invalid      NP -- interface h/w not present
MM -- mtu mismatch              Dn -- down
EM -- encapsulation mismatch    VC-Dn -- Virtual circuit Down
CM -- control-word mismatch     Up -- operational
VM -- vlan id mismatch         CF -- Call admission control failure
OL -- no outgoing label        IB -- TDM incompatible bitrate
NC -- intf encaps not CCC/TCC  TM -- TDM misconfiguration
BK -- Backup Connection        ST -- Standby Connection
CB -- rcvd cell-bundle size bad SP -- Static Pseudowire
LD -- local site signaled down RS -- remote site standby
RD -- remote site signaled down XX -- unknown
```

Legend for interface status

```
Up -- operational
Dn -- down
```

```
Neighbor: 10.255.245.51
```

```
Interface      Type St    Time last up      # Up trans
ge-2/0/2.600(vc 5)  rmt Up    Dec 7 18:11:18 2009      1
Remote PE: 10.255.245.51, Negotiated control-word: No
Incoming label: 299856, Outgoing label: 299808
```

Negotiated PW status TLV: No
 Local interface: ge-2/0/2.600, Status: Up, Encapsulation: VLAN

**show l2circuit
connections extensive**

user@host>show l2circuit connections extensive
 Layer-2 Circuit Connections:

Legend for connection status (St)

EI -- encapsulation invalid	NP -- interface h/w not present
MM -- mtu mismatch	Dn -- down
EM -- encapsulation mismatch	VC-Dn -- Virtual circuit Down
CM -- control-word mismatch	Up -- operational
VM -- vlan id mismatch	CF -- Call admission control failure
OL -- no outgoing label	IB -- TDM incompatible bitrate
NC -- intf encaps not CCC/TCC	TM -- TDM misconfiguration
BK -- Backup Connection	ST -- Standby Connection
CB -- rcvd cell-bundle size bad	SP -- Static Pseudowire
LD -- local site signaled down	RS -- remote site standby
RD -- remote site signaled down	XX -- unknown

Legend for interface status

Up -- operational
 Dn -- down

Neighbor: 10.255.49.149

Interface	Type	St	Time last up	# Up trans
ae0.0(vc 100)	rmt	Up	Aug 31 09:36:12 2009	1

Remote PE: 10.255.49.149, Negotiated control-word: Yes (Null)

Incoming label: 299824, Outgoing label: 299776

Negotiated PW status TLV: Yes

local PW status code: 0x00000000, Neighbor PW status code: 0x00000000

Local interface: ae0.0, Status: Up, Encapsulation: ETHERNET

Connection protection: Yes

Connection History:

Aug 31 09:36:12 2009	status update timer	
Aug 31 09:36:12 2009	PE route changed	
Aug 31 09:36:12 2009	Out lbl Update	299776
Aug 31 09:36:12 2009	In lbl Update	299824
Aug 31 09:36:12 2009	loc intf up	ae0.0

show l2vpn connections

Syntax	<code>show l2vpn connections</code> <code><brief extensive></code> <code><down up up-down></code> <code><history></code> <code><instance <i>instance</i>></code> <code><local-site <i>local-site</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><remote-site <i>remote-site</i>></code> <code><status></code> <code><summary></code>
Release Information	Command introduced before Junos OS Release 7.4.
Description	Display Layer 2 virtual private network (VPN) connections.
Options	<p><code>none</code>—Display all Layer 2 VPN connections for all routing instances.</p> <p><code>brief extensive</code>—(Optional) Display the specified level of output.</p> <p><code>down up up-down</code>—(Optional) Display nonoperational, operational, or both kinds of connections.</p> <p><code>history</code>—(Optional) Display information about connection history.</p> <p><code>instance <i>instance</i></code>—(Optional) Display connections for the specified routing instance only.</p> <p><code>local-site <i>local-site</i></code>—(Optional) Display connections for the specified Layer 2 VPN local site name or ID only.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><code>remote-site <i>remote-site</i></code>—(Optional) Display connection for the specified Layer 2 VPN remote site ID only.</p> <p><code>status</code>—(Optional) Display information about the connection and interface status.</p> <p><code>summary</code>—(Optional) Display summary of all Layer 2 VPN connections information.</p>
Required Privilege Level	view
List of Sample Output	show l2vpn connections on page 786 show l2vpn connections extensive on page 786
Output Fields	Table 202 on page 785 lists the output fields for the show l2vpn connections command. Output fields are listed in the approximate order in which they appear.

Table 202: show l2vpn connections Output Fields

Field Name	Field Description
Instance	Name of Layer 2 VPN instance.
Local site	Name of local site.
Interface name	Name of interface.
Remote Site ID	Remote site ID.
Label Offset	Numbers within the label block that are skipped to find the next label base.
Label-base	Advertises the first label in a block of labels. A remote PE router uses this first label when sending traffic toward the advertising PE router.
Range	Advertises the label block size.
status-vector	Bit vector advertising the state of local PE-CE circuits to remote PE routers. A bit value of 0 indicates that the local circuit and LSP tunnel to the remote PE router are up, whereas a value of 1 indicates either one or both are down.
connection-site	Name of the connection site.
Type	Type of connection: loc (local) or rmt (remote).
St	Status of the connection. (For a list of possible values, see the Legend for connection status (St) field.)
Time last up	Time that the connection was last in the Up condition.
# Up trans	Number of transitions from Down to Up condition.
Local circuit	Address and status of local circuit.
Remote circuit	Address and status of remote circuit.
Status	Status of local or remote circuit: <ul style="list-style-type: none"> • Up—Operational • Dn—Down • NP—Not present • DS—Disabled • WE—Wrong encapsulation • UN—Uninitialized
Remote PE	Address of the remote provider edge router.
Incoming label	Name of the incoming label.
Outgoing label	Name of the outgoing label.

Table 202: show l2vpn connections Output Fields (*continued*)

Field Name	Field Description
Time	Date and time of Layer 2 VPN connection event.
Event	Type of event.
Interface/Lbl/PE	Interface, label, or PE router.

show l2vpn connections

```

user@host> show l2vpn connections
L2VPN Connections :
Instance : vpna
Local site: 2 (ce-2)
offset: 1, range: 3, label-base: 32768
  connection-site      Type St  Time last up      # Up trans
  3 (3)                loc  Up   Jul 18 20:45:46 2001      1
    Local circuit: fe-0/0/0.1, Status: Up
    Remote circuit: fe-0/0/3.0, Status: Up
  1                    rmt  Up   Jul 18 21:47:25 2001      1
    Local circuit: fe-0/0/0.0, Status: Up
    Remote PE: 192.168.16.1
    Incoming label: 32768, Outgoing label: 32769
Local site: 3 (ce-3)
offset: 1, range: 2, label-base: 33792
  connection-site      Type St  Time last up      # Up trans
  2 (ce-b)             loc  Up   Jul 18 20:45:46 2001      1
    Local circuit: fe-0/0/0.1, Status: Up
    Remote circuit: fe-0/0/3.0, Status: Up
  1                    rmt  Up   Jul 18 21:47:25 2001      1
    Local circuit: fe-0/0/3.1, Status: Up
    Remote PE: 192.168.16.1
    Incoming label: 33792, Outgoing label: 32770

```

show l2vpn connections extensive

```

user@host> show l2vpn connections extensive
L2VPN Connections:

Legend for connection status (St)
EI -- encapsulation invalid      NC -- interface encapsulation not CCC/TCC/VPLS
EM -- encapsulation mismatch     WE -- interface and instance encaps not same
VC-Dn -- Virtual circuit down    NP -- interface hardware not present
CM -- control-word mismatch      -> -- only outbound connection is up
CN -- circuit not provisioned    <- -- only inbound connection is up
OR -- out of range              Up -- operational
OL -- no outgoing label         Dn -- down
LD -- local site signaled down   CF -- call admission control failure
RD -- remote site signaled down  SC -- local and remote site ID collision
LN -- local site not designated  LM -- local site ID not minimum designated
RN -- remote site not designated RM -- remote site ID not minimum designated
XX -- unknown connection status  IL -- no incoming label

```

```

Instance: vpn-a
Local site: ce-a (1)
  Interface name      Remote Site ID
  fe-0/0/0.0          2
  Label Offset      Offset      Range
  32768              1          2
  connection-site      Type St  Time last up      # Up trans

```



```
2                                rmt  Up  Aug 3 00:08:14 2001          1
Local circuit: fe-0/0/0.0, Status: Up
Remote PE: 192.168.24.1
Incoming label: 32769, Outgoing label: 32768
Time      Event                Interface/Lbl/PE
Aug 3 00:08:14 2001 PE route up
Aug 3 00:08:14 2001 Out lbl Update              32768
Aug 3 00:08:14 2001 In lbl Update               32769
Aug 3 00:08:14 2001 ckt0 up                    fe-0/0/0.0
```

show mvpn c-multicast

Syntax	show mvpn c-multicast <extensive summary> <instance-name <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 8.4.
Description	Display the multicast VPN customer multicast route information.
Options	extensive summary—(Optional) Display the specified level of output. instance-name <i>instance-name</i> —(Optional) Display output for the specified routing instance.
Required Privilege Level	view
List of Sample Output	show mvpn c-multicast on page 789 show mvpn c-multicast summary on page 789 show mvpn c-multicast extensive on page 789 show mvpn c-multicast summary (IPv6) on page 789
Output Fields	Table 203 on page 788 lists the output fields for the show mvpn c-multicast command. Output fields are listed in the approximate order in which they appear.

Table 203: show mvpn c-multicast Output Fields

Field Name	Field Description	Level of Output
Instance	Name of the VPN routing instance.	summary extensive none
C-mcast IPv4 (S:G)	Customer router IPv4 multicast address.	extensive none
Ptnl	Provider tunnel attributes, <i>tunnel type:tunnel source, tunnel destination group</i> .	extensive none
St	State: <ul style="list-style-type: none"> DS—Represents (S,G) and is created due to (*,G) RM—Remote VPN route learned from the remote PE router St display blank—SSM group join 	extensive none
MVPN instance	Name of the multicast VPN routing instance	extensive none
C-multicast IPv4 route count	Number of customer multicast IPv4 routes associated with the multicast VPN routing instance.	summary
C-multicast IPv6 route count	Number of customer multicast IPv6 routes associated with the multicast VPN routing instance.	summary

```

show mvpn      user@host> show mvpn c-multicast
c-multicast    MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)          RM -- remote VPN route
Instance: VPN-A
  C-mcast IPv4 (S:G)          Ptnl          St
  192.168.195.78/32:225.5.5.5/32 PIM-SM:10.255.14.144, 239.1.1.1      RM
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)          RM -- remote VPN route
Instance: VPN-B
  C-mcast IPv4 (S:G)          Ptnl          St
  192.168.195.94/32:226.6.6.6/32 PIM-SM:10.255.14.144, 239.2.0.0      RM

show mvpn      user@host> show mvpn c-multicast summary
c-multicast summary MVPN Summary:
Instance: VPN-A
  C-multicast IPv4 route count: 1
Instance: VPN-B
  C-multicast IPv4 route count: 2

show mvpn      user@host> show mvpn c-multicast extensive
c-multicast extensive MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)          RM -- remote VPN route
Instance: VPN-A
  C-mcast IPv4 (S:G)          Ptnl          St
  192.168.195.78/32:225.5.5.5/32 PIM-SM:10.255.14.144, 239.1.1.1      RM
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)          RM -- remote VPN route
Instance: VPN-B
  C-mcast IPv4 (S:G)          Ptnl          St
  192.168.195.94/32:226.6.6.6/32 PIM-SM:10.255.14.144, 239.2.0.0      RM

show mvpn      user@host> show mvpn c-multicast summary
c-multicast summary MVPN Summary:
  (IPv6)             Instance: VPN-A
                     C-multicast IPv6 route count: 3
Instance: VPN-B
  C-multicast IPv6 route count: 2

```

show mvpn instance

Syntax	show mvpn instance <extensive summary> <instance <i>instance-name</i> >
Release Information	Command introduced in Junos OS Release 8.4.
Description	Display the multicast VPN routing instance information.
Options	extensive summary—(Optional) Display the specified level of output. instance <i>instance-name</i> —(Optional) Display statistics for the specified routing instance.
Required Privilege Level	view
List of Sample Output	show mvpn instance on page 791 show mvpn instance summary on page 791 show mvpn instance extensive on page 791 show mvpn instance summary (IPv6) on page 792
Output Fields	Table 204 on page 790 lists the output fields for the show mvpn instance command. Output fields are listed in the approximate order in which they appear.

Table 204: show mvpn instance Output Fields

Field Name	Field Description	Level of Output
MVPN instance	Name of the multicast VPN routing instance	extensive none
Instance	Name of the VPN routing instance.	summary extensive none
Provider tunnel	Provider tunnel attributes, <i>tunnel type:tunnel source, tunnel destination group</i> .	extensive none
Neighbor	Address, type of provider tunnel (I-P-tnl, inclusive provider tunnel and S-P-tnl, selective provider tunnel) and provider tunnel for each neighbor.	extensive none
C-mcast IPv4 (S:G)	Customer IPv4 router multicast address.	extensive none
C-mcast IPv6 (S:G)	Customer IPv6 router multicast address.	extensive none
Ptnl	Provider tunnel attributes, <i>tunnel type:tunnel source, tunnel destination group</i> .	extensive none
St	State: <ul style="list-style-type: none"> DS—Represents (S,G) and is created due to (*G) RM—Remote VPN route learned from the remote PE router St display blank—SSM group join 	extensive none
Neighbor count	Number of neighbors associated with the multicast VPN routing instance.	summary

Table 204: show mvpn instance Output Fields (*continued*)

Field Name	Field Description	Level of Output
C-multicast IPv4 route count	Number of customer multicast IPv4 routes associated with the multicast VPN routing instance.	summary
C-multicast IPv6 route count	Number of customer multicast IPv6 routes associated with the multicast VPN routing instance.	summary

```

show mvpn instance      user@host> show mvpn instance
                          MVPN instance:

                          Legend for provider tunnel
                          I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

                          Legend for c-multicast routes properties (Pr)
                          DS -- derived from (*, c-g)          RM -- remote VPN route
                          Instance: VPN-A
                          Provider tunnel: I-P-tnl:PIM-SM:10.255.14.144, 239.1.1.1
                          Neighbor          I-P-tnl
                          10.255.14.160      PIM-SM:10.255.14.160, 239.1.1.1
                          10.255.70.17       PIM-SM:10.255.70.17, 239.1.1.1
                          C-mcast IPv4 (S:G) Ptnl          St
                          192.168.195.78/32:225.5.5.5/32 PIM-SM:10.255.14.144, 239.1.1.1      RM
                          MVPN instance:

                          Legend for provider tunnel
                          I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

                          Legend for c-multicast routes properties (Pr)
                          DS -- derived from (*, c-g)          RM -- remote VPN route
                          Instance: VPN-B
                          Provider tunnel: I-P-tnl:PIM-SM:10.255.14.144, 239.2.0.0
                          Neighbor          I-P-tnl
                          10.255.14.160      PIM-SM:10.255.14.160, 239.2.0.0
                          10.255.70.17       PIM-SM:10.255.70.17, 239.2.0.0
                          C-mcast IPv4 (S:G) Ptnl          St
                          192.168.195.94/32:226.6.6.6/32 PIM-SM:10.255.14.144, 239.2.0.0      RM

show mvpn instance      user@host> show mvpn instance summary
summary                MVPN Summary:
                          Instance: VPN-A
                          Neighbor count: 2
                          C-multicast IPv4 route count: 1
                          Instance: VPN-B
                          Neighbor count: 4
                          C-multicast IPv4 route count: 2

show mvpn instance      user@host> show mvpn instance extensive
extensive              MVPN instance:

                          Legend for provider tunnel
                          I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

                          Legend for c-multicast routes properties (Pr)
                          DS -- derived from (*, c-g)          RM -- remote VPN route
                          Instance: VPN-A

```

```

Provider tunnel: I-P-tnl:PIM-SM:10.255.14.144, 239.1.1.1
Neighbor                               I-P-tnl
10.255.14.160                         PIM-SM:10.255.14.160, 239.1.1.1
10.255.70.17                         PIM-SM:10.255.70.17, 239.1.1.1
C-mcast IPv4 (S:G)                   Ptnl                               St
192.168.195.78/32:225.5.5.5/32 PIM-SM:10.255.14.144, 239.1.1.1      RM
MVPN instance:

```

Legend for provider tunnel

I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)

DS -- derived from (*, c-g) RM -- remote VPN route

Instance: VPN-B

```

Provider tunnel: I-P-tnl:PIM-SM:10.255.14.144, 239.2.0.0
Neighbor                               I-P-tnl
10.255.14.160                         PIM-SM:10.255.14.160, 239.2.0.0
10.255.70.17                         PIM-SM:10.255.70.17, 239.2.0.0
C-mcast IPv4 (S:G)                   Ptnl                               St
192.168.195.94/32:226.6.6.6/32 PIM-SM:10.255.14.144, 239.2.0.0      RM

```

show mvpn instance summary (IPv6)

user@host> show mvpn instance summary

MVPN Summary:

Instance: VPN-A

C-multicast IPv6 route count: 2

Instance: VPN-B

C-multicast IPv6 route count: 2

show mvpn neighbor

Syntax	show mvpn neighbor <extensive summary> <instance <i>instance-name</i> neighbor-address <i>address</i> >
Release Information	Command introduced in Junos OS Release 8.4.
Description	Display multicast VPN neighbor information.
Options	extensive summary—(Optional) Display the specified level of output. instance <i>instance-name</i> neighbor-address <i>address</i> —(Optional) Display multicast VPN neighbor information for the specified instance or the specified neighbor.
Required Privilege Level	view
List of Sample Output	show mvpn neighbor on page 793 show mvpn neighbor extensive on page 794 show mvpn neighbor instance-name on page 794 show mvpn neighbor neighbor-address on page 794 show mvpn neighbor neighbor-address summary on page 795 show mvpn neighbor neighbor-address extensive on page 795 show mvpn neighbor neighbor-address instance-name on page 795
Output Fields	Table 205 on page 793 lists the output fields for the show mvpn neighbor command. Output fields are listed in the approximate order in which they appear.

Table 205: show mvpn neighbor Output Fields

Field Name	Field Description	Level of Output
MVPN instance	Name of the multicast VPN routing instance	extensive none
Instance	Name of the VPN routing instance.	summary extensive none
Neighbor	Address, type of provider tunnel (I-P-tnl, inclusive provider tunnel and S-P-tnl, selective provider tunnel) and provider tunnel for each neighbor.	extensive none
Provider tunnel	Provider tunnel attributes, <i>tunnel type:tunnel source, tunnel destination group</i> .	extensive none

show mvpn neighbor user@host> show mvpn neighbor
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g) RM -- remote VPN route
Instance: VPN-A

```

Neighbor                                I-P-tnl
10.255.14.160                          PIM-SM:10.255.14.160, 239.1.1.1
10.255.70.17                          PIM-SM:10.255.70.17, 239.1.1.1
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)           RM -- remote VPN route
Instance: VPN-B
Neighbor                                I-P-tnl
10.255.14.160                          PIM-SM:10.255.14.160, 239.2.0.0
10.255.70.17                          PIM-SM:10.255.70.17, 239.2.0.0

```

**show mvpn neighbor
extensive**

```

user@host> show mvpn neighbor extensive
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)           RM -- remote VPN route
Instance: VPN-A
Neighbor                                I-P-tnl
10.255.14.160                          PIM-SM:10.255.14.160, 239.1.1.1
10.255.70.17                          PIM-SM:10.255.70.17, 239.1.1.1
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)           RM -- remote VPN route
Instance: VPN-B
Neighbor                                I-P-tnl
10.255.14.160                          PIM-SM:10.255.14.160, 239.2.0.0
10.255.70.17                          PIM-SM:10.255.70.17, 239.2.0.0

```

**show mvpn neighbor
instance-name**

```

user@host> show mvpn neighbor instance-name VPN-A
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)           RM -- remote VPN route
Instance: VPN-A
Neighbor                                I-P-tnl
10.255.14.160                          PIM-SM:10.255.14.160, 239.1.1.1
10.255.70.17                          PIM-SM:10.255.70.17, 239.1.1.1

```

**show mvpn neighbor
neighbor-address**

```

user@host> show mvpn neighbor neighbor-address 10.255.14.160
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)

```



```

DS -- derived from (*, c-g)          RM -- remote VPN route
Instance: VPN-A
  Neighbor                          I-P-tnl
    10.255.14.160                    PIM-SM:10.255.14.160, 239.1.1.1
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)          RM -- remote VPN route
Instance: VPN-B
  Neighbor                          I-P-tnl
    10.255.14.160                    PIM-SM:10.255.14.160, 239.2.0.0

```

```

show mvpn neighbor      user@host> show mvpn neighbor neighbor-address 10.255.70.17 summary
neighbor-address
summary                MVPN Summary:
                          Instance: VPN-A
                          Instance: VPN-B

```

```

show mvpn neighbor      user@host> show mvpn neighbor neighbor-address 10.255.70.17 extensive
neighbor-address
extensive              MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)          RM -- remote VPN route
Instance: VPN-A
  Neighbor                          I-P-tnl
    10.255.70.17                    PIM-SM:10.255.70.17, 239.1.1.1
MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)          RM -- remote VPN route
Instance: VPN-B
  Neighbor                          I-P-tnl
    10.255.70.17                    PIM-SM:10.255.70.17, 239.2.0.0

```

```

show mvpn neighbor      user@host> show mvpn neighbor neighbor-address 10.255.70.17 instance-name VPN-A
neighbor-address
instance-name          MVPN instance:

Legend for provider tunnel
I-P-tnl -- inclusive provider tunnel S-P-tnl -- selective provider tunnel

Legend for c-multicast routes properties (Pr)
DS -- derived from (*, c-g)          RM -- remote VPN route
Instance: VPN-A
  Neighbor                          I-P-tnl
    10.255.70.17                    PIM-SM:10.255.70.17, 239.1.1.1

```

show vpls connections

Syntax	<code>show vpls connections</code> <code><brief extensive></code> <code><down up up-down></code> <code><history></code> <code><instance <i>instance-name</i> local-site <i>local-site-name</i> remote-site <i>remote-site-name</i>></code> <code><logical-system (all <i>logical-system-name</i>)></code> <code><status></code> <code><summary></code>
Release Information	Command introduced before Junos OS Release 7.4.
Description	(T Series and M Series routers, except for the M160 router) Display virtual private LAN service (VPLS) connection information.
Options	<p><code>none</code>—Display information about all VPLS connections for all routing instances.</p> <p><code>brief extensive</code>—(Optional) Display the specified level of output.</p> <p><code>down up up-down</code>—(Optional) Display nonoperational, operational, or both types of connections.</p> <p><code>history</code>—(Optional) Display information about connection history.</p> <p><code>instance <i>instance-name</i></code>—(Optional) Display the VPLS connections for the specified routing instance only.</p> <p><code>local-site <i>local-site-name</i></code>—(Optional) Display the VPLS connections for the specified local site name or ID only.</p> <p><code>remote-site <i>remote-site-name</i></code>—(Optional) Display the VPLS connections for the specified remote site name or ID only.</p> <p><code>logical-system (all <i>logical-system-name</i>)</code>—(Optional) Perform this operation on all logical systems or on a particular logical system.</p> <p><code>status</code>—(Optional) Display information about the connection and interface status.</p> <p><code>summary</code>—(Optional) Display summary of all VPLS connections information.</p>
Required Privilege Level	view
List of Sample Output	<code>show vpls connections</code> on page 800 <code>show vpls connections extensive (Static VPLS Neighbors)</code> on page 802
Output Fields	Table 206 on page 797 lists the output fields for the <code>show vpls connections</code> command. Output fields are listed in the approximate order in which they appear.

Table 206: show vpls connections Output Fields

Field Name	Field Description
Instance	Name of the VPLS instance.
Local site	Name of the local site.
VPLS-id	Identifier for the VPLS site.
Number of local interfaces	Number of interfaces configured for the local site.
Number of local interfaces up	Number of interfaces configured for the local site that are currently up.
IRB interface present	Indicates whether or not an integrated routing and bridging (IRB) interface is present (yes or no).
Intf	<p>List of all of the interfaces configured for the local site. The types of interfaces can include VPLS virtual loopback tunnel interfaces and label-switched interfaces. Any interface that supports VPLS could be listed here.</p> <p>Virtual loopback tunnel interfaces are displayed using the vt-fpc/pic/port.nnnnn format. Label-switched interfaces are displayed using the lsi.nnnnn format. In both cases, nnnnn is a dynamically generated virtual port used to transport and receive packets from other provider edge (PE) routers in the VPLS domain.</p> <p>Each interface might include the following information:</p> <ul style="list-style-type: none"> • Identification as a VPLS interface • Name of the associated VPLS routing instance • Local site number • Remote site number • VPLS neighbor address • VPLS identifier
Interface flags	<p>Flag associated with the interface. Can include the following:</p> <ul style="list-style-type: none"> • VC-Down—The virtual circuit associated with this interface is down.
Label-base	First label in a block of labels. A remote PE router uses this first label when sending traffic toward the advertising PE router.
Offset	Displays the VPLS Edge (VE) block offset in the Layer 2 VPN NLRI. The VE block offset is used to identify a label block from which a particular label value is selected to setup a psduowire for a remote site. The block offset value itself indicates the starting VE ID that maps to the label base contained in the VPLS NLRI advertisement.
Size	Label block size.
Range	Label block range.

Table 206: show vpls connections Output Fields (*continued*)

Field Name	Field Description
Preference	Preference value advertised for a VPLS site. When multiple PE routers are assigned the same VE ID for multihoming, you might need to specify that a particular PE router acts as the designated forwarder by configuring the site preference value. The site preference indicates the degree of preference for a particular customer site. The site preference is one of the tie-breaking criteria used in a designated forwarder election.
status-vector	Bit vector advertising the state of local PE-CE circuits to remote PE routers. A bit value of 0 indicates that the local circuit and LSP tunnel to the remote PE router are up, whereas a value of 1 indicates either one or both are down.
connection-site	Name of the connection site.
Neighbor	IP address and VPLS identifier for the VPLS neighbor.
Type	Type of connection: loc (local) or rmt (remote).
St	<p>Status of the VPLS connection:</p> <ul style="list-style-type: none"> • EI—The local VPLS interface is configured with an encapsulation that is not supported. • EM—The encapsulation type received on this VPLS connection from the neighbor does not match the local VPLS connection interface encapsulation type. • VC-Dn—The virtual circuit is currently down. • CM—The two routers do not agree on a control word, which causes a control word mismatch. • CN—The virtual circuit is not provisioned properly. • OR—The label associated with the virtual circuit is out of range. • OL—No advertisement has been received for this virtual circuit from the neighbor. There is no outgoing label available for use by this virtual circuit. • LD—All of the CE-facing interfaces to the local site are down. Therefore, the connection to the local site is signaled as down to the other PE routers. No pseudowires can be established. • RD—All the interfaces to the remote neighbor are down. Therefore, the remote site has been signaled as down to the other PE routers. No pseudowires can be established. • LN—The local site has lost path selection to the remote site and therefore no pseudowires can be established from this local site. • RN—The remote site has lost path selection to a local site or other remote site and therefore no pseudowires are established to this remote site. • XX—The VPLS connection is down for an unknown reason. This is a programming error. • MM—The MTU for the local site and the remote site do not match. • BK—The router is using a backup connection. • PF—Profile parse failure. • RS—The remote site is in a standby state. • NC—The interface encapsulation is not configured as an appropriate CCC, TCC, or VPLS encapsulation.

Table 206: show vpls connections Output Fields (*continued*)

Field Name	Field Description
	<ul style="list-style-type: none"> • WE—The encapsulation configured for the interface does not match the encapsulation configured for the associated connection within the VPLS routing instance. • NP—The router detects that interface hardware is not present. The hardware might be offline, a PIC might not be of the desired type, or the interface might be configured in a different routing instance. • ->—Only the outbound connection is up. • <-—Only the inbound connection is up. • Up—The VPLS connection is operational. • Dn—The VPLS connection is down. • CF—The router cannot find enough bandwidth to the remote router to satisfy the VPLS connection bandwidth requirement. • SC—The local site identifier matches the remote site identifier. No pseudowire can be established between these two sites. You should configure different values for the local and remote site identifiers. • LM—The local site identifier is not the minimum designated, meaning it is not the lowest. There is another local site with a lower site identifier. Pseudowires are not being established to this local site, and the associated local site identifier is not being used to distribute VPLS label blocks. However, this is not an error state. Traffic continues to be forwarded to the PE router interfaces connected to the local sites when the local sites are in this state. • RM—The remote site identifier is not the minimum designated, meaning it is not the lowest. There is another remote site connected to the same PE router which has lower site identifier. The PE router cannot establish a pseudowire to this remote site and the associated remote site identifier cannot be used to distribute VPLS label blocks. However, this is not an error state. Traffic can continue to be forwarded to the PE router interface connected to this remote site when the remote site is in this state. • IL—The incoming packets for the VPLS connection have no MPLS label. • MI—The configured mesh group identifier is in use by another system in the network. • ST—The router has switched to a standby connection. • PB—Profile busy. • SN—The VPLS neighbor is static.
Time last up	Time connection was last in the Up condition.
# Up trans	Number of transitions from Down to Up condition.
Status	Status of the (local or remote circuit) local interface: <ul style="list-style-type: none"> • Up—Operational • Dn—Down • NP—Not present • DS—Disabled • WE—Wrong encapsulation • UN—Uninitialized
Encapsulation	Type of encapsulation: VPLS .

Table 206: show vpls connections Output Fields (*continued*)

Field Name	Field Description
Remote PE	Address of the remote provider edge router.
Negotiated control-word	Whether a control word has been negotiated: Yes or No .
Incoming label	Name of the incoming label.
Outgoing label	Name of the outgoing label.
Negotiated PW status TLV	Indicates whether or not the pseudowire status TLV has been negotiated for the VPLS connection.
Local interface	Provides the following information about the local interface configured for the VPLS neighbor: <ul style="list-style-type: none"> Name of the local interface Status—Interface status (Up or Down) Encapsulation—Interface encapsulation (for example, ETHERNET) Description—Includes the VPLS instance name, the VPLS neighbor address, and the VPLS identifier
Time	Date and time of VPLS connection event.
Event	Type of event.
Interface/Lbl/PE	Interface, label, or PE router.
Connection History	Each entry can include the date, time, year, and the connection event. Connection events include any of a variety of events related to VPLS connections, such as route changes, label updates, and interfaces going down or coming up.

show vpls connections user@host> show vpls connections
Layer-2 VPN connections:

Legend for connection status (St)

EI -- encapsulation invalid	NC -- interface encapsulation not CCC/TCC/VPLS
EM -- encapsulation mismatch	WE -- interface and instance encaps not same
VC-Dn -- Virtual circuit down	NP -- interface hardware not present
CM -- control-word mismatch	-< -- only outbound connection is up
CN -- circuit not provisioned	>- -- only inbound connection is up
OR -- out of range	Up -- operational
OL -- no outgoing label	Dn -- down
LD -- local site signaled down	CF -- call admission control failure
RD -- remote site signaled down	SC -- local and remote site ID collision
LN -- local site not designated	LM -- local site ID not minimum designated
RN -- remote site not designated	RM -- remote site ID not minimum designated
XX -- unknown connection status	IL -- no incoming label
MM -- MTU mismatch	MI -- Mesh-Group ID not availble
BK -- Backup connection	ST -- Standby connection
PF -- Profile parse failure	PB -- Profile busy

Legend for interface status

Up -- operational

Dn -- down

Instance: vpls-1

Local site: 1 (11)

Number of local interfaces: 1

Number of local interfaces up: 1

IRB interface present: no

lt-1/3/0.10496

vt-1/3/0.1048588 1 Intf - vpls vpls-1 local site 11 remote site 1

vt-1/2/0.1048591 2 Intf - vpls vpls-1 local site 11 remote site 2

vt-1/2/0.1048585 3 Intf - vpls vpls-1 local site 11 remote site 3

vt-1/2/0.1048587 4 Intf - vpls vpls-1 local site 11 remote site 4

vt-1/2/0.1048589 5 Intf - vpls vpls-1 local site 11 remote site 5

vt-1/3/0.1048586 6 Intf - vpls vpls-1 local site 11 remote site 6

vt-1/3/0.1048590 7 Intf - vpls vpls-1 local site 11 remote site 7

vt-1/3/0.1048584 8 Intf - vpls vpls-1 local site 11 remote site 8

Label-base	Offset	Size	Range	Preference
+ 800256	1	16	16	100

Timer Values:

Startup wait time: 120 seconds

New site wait-time: 20 seconds

Collision detect time: 30 seconds

Reclaim wait time: 748 milliseconds

connection-site	Type	St	Time last up	# Up trans
1	rmt	Up	Apr 28 13:28:24 2009	2

Remote PE: 124.1.2.1, Negotiated control-word: No

Incoming label: 800256, Outgoing label: 800026

Local interface: vt-1/3/0.1048588, Status: Up, Encapsulation: VPLS

Description: Intf - vpls vpls-1 local site 11 remote site 1

Connection History:

Apr 28 13:28:24 2009 status update timer

Apr 28 13:28:24 2009 PE route down

Apr 28 13:24:27 2009 status update timer

Apr 28 13:24:27 2009 loc intf up vt-1/3/0.1048588

Apr 28 13:24:27 2009 PE route changed

Apr 28 13:24:27 2009 Out lbl Update 800026

Apr 28 13:24:27 2009 In lbl Update 800256

Apr 28 13:24:27 2009 loc intf down

2	rmt	Up	Apr 28 13:28:24 2009	2
---	-----	----	----------------------	---

Remote PE: 124.1.7.1, Negotiated control-word: No

Incoming label: 800257, Outgoing label: 800034

Local interface: vt-1/2/0.1048591, Status: Up, Encapsulation: VPLS

Description: Intf - vpls vpls-1 local site 11 remote site 2

Connection History:

Apr 28 13:28:24 2009 status update timer

Apr 28 13:28:24 2009 PE route down

Apr 28 13:24:28 2009 status update timer

Apr 28 13:24:28 2009 loc intf up vt-1/2/0.1048591

Apr 28 13:24:28 2009 PE route changed

Apr 28 13:24:28 2009 Out lbl Update 800034

Apr 28 13:24:28 2009 In lbl Update 800257

```

    Apr 28 13:24:28 2009  loc intf down
3      rmt  Up      Apr 28 13:28:24 2009      2
    Remote PE: 124.1.4.1, Negotiated control-word: No
    Incoming label: 800258, Outgoing label: 800026
    Local interface: vt-1/2/0.1048585, Status: Up, Encapsulation: VPLS
    Description: Intf - vpls vpls-1 local site 11 remote site 3
    Connection History:
    Apr 28 13:28:24 2009  status update timer
    Apr 28 13:28:24 2009  PE route down
    Apr 28 13:24:26 2009  status update timer
    Apr 28 13:24:26 2009  loc intf up          vt-1/2/0.1048585
    Apr 28 13:24:26 2009  PE route changed
    Apr 28 13:24:26 2009  Out lbl Update          800026
    Apr 28 13:24:26 2009  In lbl Update          800258
    Apr 28 13:24:26 2009  loc intf down
4      rmt  Up      Apr 28 13:28:24 2009      2
    Remote PE: 124.1.6.1, Negotiated control-word: No
    Incoming label: 800259, Outgoing label: 800026
    Local interface: vt-1/2/0.1048587, Status: Up, Encapsulation: VPLS
    Description: Intf - vpls vpls-1 local site 11 remote site 4
    Connection History:
    Apr 28 13:28:24 2009  status update timer
    Apr 28 13:28:24 2009  PE route down
    Apr 28 13:24:27 2009  status update timer
    Apr 28 13:24:27 2009  loc intf up          vt-1/2/0.1048587
    Apr 28 13:24:27 2009  PE route changed
    Apr 28 13:24:27 2009  Out lbl Update          800026
    Apr 28 13:24:27 2009  In lbl Update          800259
    Apr 28 13:24:27 2009  loc intf down
5      rmt  Up      Apr 28 13:28:24 2009      2
    Remote PE: 124.1.3.1, Negotiated control-word: No
    Incoming label: 800260, Outgoing label: 800034
    Local interface: vt-1/2/0.1048589, Status: Up, Encapsulation: VPLS
    Description: Intf - vpls vpls-1 local site 11 remote site 5
    Connection History:
    Apr 28 13:28:24 2009  status update timer
    Apr 28 13:28:24 2009  PE route down
    Apr 28 13:24:28 2009  status update timer
    Apr 28 13:24:28 2009  loc intf up          vt-1/2/0.1048589
    Apr 28 13:24:28 2009  PE route changed
    Apr 28 13:24:28 2009  Out lbl Update          800034
    Apr 28 13:24:27 2009  In lbl Update          800260
    Apr 28 13:24:27 2009  loc intf down

```

**show vpls connections
extensive (Static VPLS
Neighbors)**

user@host> show vpls connections extensive instance red
Layer-2 VPN connections:

Legend for connection status (St)

EI -- encapsulation invalid	NC -- interface encapsulation not CCC/TCC/VPLS
EM -- encapsulation mismatch	WE -- interface and instance encaps not same
VC-Dn -- Virtual circuit down	NP -- interface hardware not present
CM -- control-word mismatch	-> -- only outbound connection is up
CN -- circuit not provisioned	<- -- only inbound connection is up
OR -- out of range	Up -- operational
OL -- no outgoing label	Dn -- down
LD -- local site signaled down	CF -- call admission control failure
RD -- remote site signaled down	SC -- local and remote site ID collision
LN -- local site not designated	LM -- local site ID not minimum designated
RN -- remote site not designated	RM -- remote site ID not minimum designated
XX -- unknown connection status	IL -- no incoming label
MM -- MTU mismatch	MI -- Mesh-Group ID not available

BK -- Backup connection ST -- Standby connection
 PF -- Profile parse failure PB -- Profile busy
 RS -- remote site standby SN -- Static Neighbor

Legend for interface status
 Up -- operational
 Dn -- down

Instance: static
 VPLS-id: 1
 Number of local interfaces: 1
 Number of local interfaces up: 1
 ge-0/0/5.0
 lsi.1049344 Intf - vpls static neighbor 10.255.114.3 vpls-id

Neighbor	Type	St	Time last up	# Up trans
10.255.114.3(vpls-id 1)(SN)	rmt	Up	Mar 4 08:48:41 2010	1

Remote PE: 10.255.114.3, Negotiated control-word: No
 Incoming label: 29696, Outgoing label: 29697
 Negotiated PW status TLV: No
 Local interface: lsi.1049344, Status: Up, Encapsulation: ETHERNET
 Description: Intf - vpls static neighbor 10.255.114.3 vpls-id 1

Connection History:

Mar 4 08:48:41 2010	status update timer	
Mar 4 08:48:41 2010	PE route changed	
Mar 4 08:48:41 2010	Out lbl Update	29697
Mar 4 08:48:41 2010	In lbl Update	29696
Mar 4 08:48:41 2010	loc intf up	lsi.1049344

show vpls flood event-queue

Syntax	show vpls flood event-queue
Release Information	Command introduced in Junos OS Release 8.0.
Description	Display the pending events in the VPLS flood queue.
Options	This command has no options.
Required Privilege Level	view
List of Sample Output	show vpls flood event-queue on page 804
Output Fields	Table 207 on page 804 lists the output fields for the show vpls flood event-queue command. Output fields are listed in the approximate order in which they appear.

Table 207: show vpls flood event-queue Output Fields

Field Name	Field Description
Current Pending Event	Provides information on the current event in the VPLS flood event queue.
Name	Name of the event.
Owner Name	Name of the interface associated with the flood event.
Pending Op	Pending operation for the event.
Last Error	Name of the last error encountered.
Number of Retries	Number of attempts made to update the event queue.
Pending Event List	List of the events awaiting processing.
Event Name	Name of the event.
Pending Op	Pending operation for the event.
Event Identifier	Name of the interface associated with the flood event.

show vpls flood event-queue

```

user@host> show vpls flood event-queue
Current Pending Event
  Name:          Flood Nexthop
  Owner Name:ge-4/3/0.0
  Pending Op: ADD
  Last Error:ENOMEM
  Number of Retries:3
  Pending Event List:
    Event Name      Pending Op      Event Identifier

```

Flood	NextHop	ADD	ge-4/3/0.0
Flood	Route	ADD	ge-4/3/0.0

show vpls flood instance

Syntax	show vpls flood instance <brief detail extensive> <instance-name> <logical-system <i>logical-system-name</i> >
Release Information	Command introduced in Junos OS Release 8.0.
Description	Display VPLS information related to the flood process.
Options	<p>none—Display VPLS information related to the flood process for all routing instances.</p> <p>brief detail extensive—(Optional) Display the specified level of output.</p> <p><i>instance-name</i>—(Optional) Display VPLS information related to the flood process for the specified routing instance.</p> <p>logical-system <i>logical-system-name</i>—(Optional) Display VPLS information related to the flood process for the specified logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show vpls flood instance on page 807</p> <p>show vpls flood instance logical-system-name on page 807</p> <p>show vpls flood instance detail on page 807</p>
Output Fields	Table 208 on page 806 lists the output fields for the show vpls flood instance command. Output fields are listed in the approximate order in which they appear.

Table 208: show vpls flood instance Output Fields

Field Name	Field Description
Logical system	Name of the logical system.
Name	Name of the VPLS routing instance.
CEs	Number of CE routers connected to the VPLS instance.
VEs	Number of VE routers connected to the VPLS instance.
Flood routes	List of all flood routes associated with the VPLS instance.
Prefix	Prefix for the route.
Type	Type of route.
Owner	VPLS routing instance or interface associated with the route.
Nhype	Next-hop type. For example, flood for a flood route.

Table 208: show vpls flood instance Output Fields (*continued*)

Field Name	Field Description
Nhindex	Next-hop index number for the route.

show vpls flood instance user@host> show vpls flood instance

```
Logical system: __juniper_ls1__
Name: green
CEs: 1
VEs: 1
Flood Routes:
  Prefix   Type      Owner      NhType      NhIndex
  default  ALL_CE_FLOOD green      flood       383
  0x47/16  CE_FLOOD  fe-1/2/1.0 flood       388
```

show vpls flood instance logical-system-name user@host: __juniper_ls1__> show vpls flood instance juniper_ls1

```
Logical system: __juniper_ls1__
Name: green
CEs: 1
VEs: 1
Flood Routes:
  Prefix   Type      Owner      NhType      NhIndex
  default  ALL_CE_FLOOD green      flood       383
  0x47/16  CE_FLOOD  fe-1/2/1.0 flood       388
```

show vpls flood instance detail user@host: __juniper_ls1__> show vpls flood instance detail

```
Logical system: __juniper_ls1__
Name: green
CEs: 1
VEs: 1
Flood Routes:
  Prefix   Type      Owner      NhType      NhIndex
  default  ALL_CE_FLOOD green      flood       383
  0x47/16  CE_FLOOD  fe-1/2/1.0 flood       388
```

show vpls flood route

Syntax	show vpls flood route (all-ce-flood instance-name <i>instance-name</i> <logical-system-name <i>logical-system-name</i> > ce-flood interface <i>interface-name</i>)
Release Information	Command introduced in Junos OS Release 8.0.
Description	Display VPLS route information related to the flood process for either the specified routing instance or the specified interface.
Options	<p>all-ce-flood—Display the flood next-hop route for all customer edge routers for traffic coming from the core of the network.</p> <p>ce-flood interface <i>interface-name</i>—Display the flood next-hop route for traffic coming from the specified customer edge interface.</p> <p>instance-name <i>instance-name</i>—Display the flood routes for the specified instance.</p> <p>logical-system-name <i>logical-system-name</i>—(Optional) Specify the logical system whose flood routes you want to display. You can only specify the default logical system name for VPLS. The default logical system name is __juniper_ls1__ (the name must be entered in the command with the underscore characters).</p>
Required Privilege Level	view
List of Sample Output	<p>show vpls flood route all-ce-flood on page 809</p> <p>show vpls flood route ce-flood on page 809</p>
Output Fields	Table 209 on page 808 lists the output for the show vpls flood route command. Output fields are listed in the approximate order in which they appear.

Table 209: show vpls flood route Output Fields

Field Name	Field Description
Flood route prefix	Prefix for the flood route.
Flood route type	Type of flood route (either CE_FLOOD or ALL_CE_FLOOD).
Flood route owner	VPLS routing instance or interface associated with the flood route.
Nexthop type	Next-hop type. For example, flood for a flood route.
Nexthop index	Next-hop index number for the route.
Interfaces flooding to	Interfaces to which VPLS routes are being flooded.
Name	Name of the interface.

Table 209: show vpls flood route Output Fields (*continued*)

Field Name	Field Description
Type	Type of VPLS router (CE or VE).
Nh type	Next-hop type.
Index	Index number for the flood route.

show vpls flood route all-ce-flood user@host: __juniper_lsl__> show vpls flood route all-ce-flood logical-system-name __juniper_lsl_instance-name green

```
Flood route prefix: default
Flood route type: ALL_CE_FLOOD
Flood route owner: green
Nexthop type: flood
Nexthop index: 383
  Interfaces Flooding to:
    Name      Type      NhType      Index
    fe-1/2/1.0  CE
```

show vpls flood route ce-flood user@host: __juniper_lsl__> show vpls flood route ce-flood interface fe-1/2/1.0

```
Flood route prefix: 0x47/16
Flood route type: CE_FLOOD
Flood route owner: fe-1/2/1.0
Nexthop type: flood
Nexthop index: 388
  Interfaces Flooding to:
    Name      Type      NhType      Index
    lsi.49152  VE        indr        262142
```

show vpls mac-table

Syntax	<pre>show vpls mac-table <brief detail extensive summary> <bridge-domain <i>bridge-domain-name</i>> <instance <i>instance-name</i>> <interface <i>interface-name</i>> <logical-system (all <i>logical-system-name</i>)> <mac-address> <vlan-id <i>vlan-id-number</i>></pre>
Release Information	Command introduced in Junos OS Release 8.5.
Description	(MX960 routers only) Display learned VPLS MAC address information.
Options	<p>none—Display all learned VPLS MAC address information.</p> <p>brief detail extensive summary—(Optional) Display the specified level of output.</p> <p>bridge-domain <i>bridge-domain-name</i>—(Optional) Display learned VPLS MAC addresses for the specified bridge domain.</p> <p>instance <i>instance-name</i>—(Optional) Display learned VPLS MAC addresses for the specified instance.</p> <p>interface <i>interface-name</i>—(Optional) Display learned VPLS MAC addresses for the specified instance.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Display learned VPLS MAC addresses for all logical systems or for the specified logical system.</p> <p>mac-address—(Optional) Display the specified learned VPLS MAC address information..</p> <p>vlan-id <i>vlan-id-number</i>—(Optional) Display learned VPLS MAC addresses for the specified VLAN.</p>
Required Privilege Level	view
List of Sample Output	<pre>show vpls mac-table on page 811 show vpls mac-table count on page 812 show vpls mac-table detail on page 812 show vpls mac-table extensive on page 813</pre>
Output Fields	Table 210 on page 810 describes the output fields for the show bridge mac-table command. Output fields are listed in the approximate order in which they appear.

Table 210: show vpls mac-table Output fields

Field Name	Field Description
Routing instance	Name of the routing instance.

Table 210: show vpls mac-table Output fields (*continued*)

Field Name	Field Description
Bridging domain	Name of the bridging domain.
MAC address	MAC address or addresses learned on a logical interface.
MAC flags	Status of MAC address learning properties for each interface: <ul style="list-style-type: none"> • S—Static MAC address configured. • D—Dynamic MAC address learned. • SE—MAC accounting is enabled. • NM—Nonconfigured MAC.
Logical interface	Name of the logical interface.
MAC count	Number of MAC addresses learned on a specific routing instance or interface.
Learning interface	Logical interface or logical Label Switched Interface (LSI) the address is learned on.
Learn VLAN ID/VLAN	VLAN ID of the routing instance or bridge domain in which the MAC address was learned.
Layer 2 flags	Debugging flags signifying that the MAC address is present in various lists.
Epoch	Spanning Tree Protocol epoch number identifying when the MAC address was learned. Used for debugging.
Sequence number	Sequence number assigned to this MAC address. Used for debugging.
Learning mask	Mask of Packet Forwarding Engines where this MAC address was learned. Used for debugging.
IPC generation	Creation time of the logical interface when this MAC address was learned. Used for debugging.

```

show vpls mac-table  user@host> show vpls mac-table
MAC flags (S -static MAC, D -dynamic MAC,
              SE -Statistics enabled, NM -Non configured MAC)

Routing instance : vpls_ldp1
VLAN : 223
  MAC          MAC      Logical
  address      flags    interface
  00:90:69:9c:1c:5d  D      ge-0/2/5.400

MAC flags (S -static MAC, D -dynamic MAC,
              SE -Statistics enabled, NM -Non configured MAC)

Routing instance : vpls_red
VLAN : 401
  MAC          MAC      Logical
  address      flags    interface

```

```

00:00:aa:12:12:12  D      lsi.1051138
00:05:85:74:9f:f0  D      lsi.1051138

```

```

show vpls mac-table count  user@host> show vpls mac-table count
                           0 MAC address learned in routing instance __juniper_private1__

```

MAC address count per interface within routing instance:

Logical interface	MAC count
lc-0/0/0.32769	0
lc-0/1/0.32769	0
lc-0/2/0.32769	0
lc-2/0/0.32769	0
lc-0/3/0.32769	0
lc-2/1/0.32769	0
lc-9/0/0.32769	0
lc-11/0/0.32769	0
lc-2/2/0.32769	0
lc-9/1/0.32769	0
lc-11/1/0.32769	0
lc-2/3/0.32769	0
lc-9/2/0.32769	0
lc-11/2/0.32769	0
lc-11/3/0.32769	0
lc-9/3/0.32769	0

MAC address count per learn VLAN within routing instance:

Learn VLAN ID	MAC count
0	0

1 MAC address learned in routing instance vpls_ldp1

MAC address count per interface within routing instance:

Logical interface	MAC count
lsi.1051137	0
ge-0/2/5.400	1

MAC address count per learn VLAN within routing instance:

Learn VLAN ID	MAC count
0	1

1 MAC address learned in routing instance vpls_red

MAC address count per interface within routing instance:

Logical interface	MAC count
ge-0/2/5.300	1

MAC address count per learn VLAN within routing instance:

Learn VLAN ID	MAC count
0	1

```

show vpls mac-table detail user@host> show vpls mac-table detail
                           MAC address: 00:90:69:9c:1c:5d
                           Routing instance: vpls_ldp1
                           Learning interface: ge-0/2/5.400
                           Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
                           Epoch: 0                               Sequence number: 1
                           Learning mask: 0x1                   IPC generation: 0

                           MAC address: 00:90:69:9c:1c:5d
                           Routing instance: vpls_red
                           Learning interface: ge-0/2/5.300

```

```

Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
Epoch: 0                               Sequence number: 1
Learning mask: 0x1                       IPC generation: 0

show vpls mac-table extensive user@host> show vpls mac-table extensive
extensive MAC address: 00:00:aa:12:12:12
Routing instance: vpls_ldp1
Learning interface: lsi.1051137
Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
Epoch: 0                               Sequence number: 1
Learning mask: 0x1                       IPC generation: 0

MAC address: 00:05:85:74:9f:f0
Routing instance: vpls_ldp1
Learning interface: lsi.1051137
Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
Epoch: 0                               Sequence number: 1
Learning mask: 0x1                       IPC generation: 0

MAC address: 00:90:69:9c:1c:5d
Routing instance: vpls_ldp1
Learning interface: ge-0/2/5.400
Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
Epoch: 0                               Sequence number: 1
Learning mask: 0x1                       IPC generation: 0

MAC address: 00:00:aa:12:12:12
Routing instance: vpls_red
Learning interface: lsi.1051138
Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
Epoch: 0                               Sequence number: 0
Learning mask: 0x1                       IPC generation: 0

MAC address: 00:05:85:74:9f:f0
Routing instance: vpls_red
Learning interface: lsi.1051138
Layer 2 flags: in_ifd, in_ifl, in_vlan, kernel
Epoch: 0                               Sequence number: 0
Learning mask: 0x1                       IPC generation: 0

```

show vpls statistics

Syntax	show vpls statistics <instance <i>instance-name</i> > <logical-system (all <i>logical-system-name</i>)>
Release Information	Command introduced before Junos OS Release 7.4.
Description	(T Series and M Series routers, except for the M160 router) Display virtual private LAN service (VPLS) statistics.
Options	<p>none—Display VPLS statistics for all routing instances.</p> <p>instance <i>instance-name</i>—(Optional) Display VPLS statistics for a specific VPLS routing instance only.</p> <p>logical-system (all <i>logical-system-name</i>)—(Optional) Perform this operation on all logical systems or on a particular logical system.</p>
Required Privilege Level	view
List of Sample Output	<p>show vpls statistics on page 815</p> <p>show vpls statistics instance on page 815</p>
Output Fields	Table 211 on page 814 lists the output fields for the show vpls statistics command. Output fields are listed in the approximate order in which they appear.

Table 211: show vpls statistics Output Fields

Field Name	Field Description
Instance	Name of the VPLS instance.
Local interface	Name of the local VPLS virtual loopback tunnel interface, <i>vt-fpc/plc/port.nnnnn</i> , where <i>nnnnn</i> is a dynamically generated virtual port used to transport and receive packets from other provider edge (PE) routers in the VPLS domain.
Index	Number associated with the next hop.
Remote provider edge router	Address of the remote provider edge router.
Multicast packets	Number of multicast packets received.
Multicast bytes	Number of multicast bytes received.
Flood packets	Number of VPLS flood packets received.
Flood bytes	Number of VPLS flood bytes received.

Table 211: show vpls statistics Output Fields (*continued*)

Field Name	Field Description
Current MAC count	Number of MAC addresses learned by the interface and the configured maximum limit on the number of MAC addresses that can be learned.

```

show vpls statistics  user@host> show vpls statistics

VPLS statistics:

Instance: green

    Local interface: fe-2/2/1.0, Index: 69
      Multicast packets:      1
      Multicast bytes   :    60
      Flooded packets   :    18
      Flooded bytes    :   2556
      Current MAC count:      1

    Local interface: lt-0/3/0.2, Index: 72
      Multicast packets:      3
      Multicast bytes   :   153
      Flooded packets   :      1
      Flooded bytes    :    51
      Current MAC count:      1

    Local interface: lsi.32769, Index: 75
      Current MAC count:      0

    Local interface: lsi.32771, Index: 77
    Remote PE: 10.255.14.222
      Current MAC count:      2

Instance: red

    Local interface: vt-0/3/0.32768, Index: 74
      Multicast packets:      0
      Multicast bytes   :      0
      Flooded packets   :      0
      Flooded bytes    :      0
      Current MAC count:      0

    Local interface: vt-0/3/0.32770, Index: 76
      Multicast packets:      0
      Multicast bytes   :      0
      Flooded packets   :      0
      Flooded bytes    :      0
      Current MAC count:      0

```

```

show vpls statistics instance  user@host> show vpls statistics instance red

Layer-2 VPN Statistics:
Instance: red

    Local interface: vt-3/2/0.32768, Index: 73
    Remote provider edge router: 10.255.17.35

```

Multicast packets:	0
Multicast bytes :	0
Flood packets :	0
Flood bytes :	0
Current MAC count:	1 (Limit 20)

PART 6

Index

- Index on page 819
- Index of Statements and Commands on page 829

Index

Symbols

#, comments in configuration statements.....	xxi
(), in syntax descriptions.....	xxi
< >, in syntax descriptions.....	xx
[], in configuration statements.....	xxi
{ }, in configuration statements.....	xxi
(pipe), in syntax descriptions.....	xxi

A

administrative groups <i>See</i> groups	
advertisements <i>See</i> router advertisements	
ANCP	
CoS state	
displaying ANCP.....	5
local access loop	
displaying.....	10
neighbor	
clearing.....	4
neighbors	
displaying.....	8
subscribers	
displaying.....	10
AS paths	
distribution of, displaying.....	384
domain information, displaying.....	388
matching regular expressions, displaying.....	406
summary of, displaying.....	390
ASN	
BGP community routes, displaying.....	415
automatic bandwidth allocation	
LSPs.....	649
Automatic Multicast Tunneling <i>See</i> AMT	
autonomous system number <i>See</i> ASN	
autonomous system paths <i>See</i> AS paths	

B

bandwidth, allocating for LSPs.....	649
best routes, displaying.....	408

BFD

sessions	
clearing.....	17
displaying.....	18

BGP

community ASN, displaying routes.....	415
community name, displaying routes.....	417
damping parameters	
clearing.....	26
displaying.....	58
damping routes, displaying.....	419
groups	
general information, displaying.....	31
traffic statistics, displaying.....	37
neighbors	
clearing connections.....	27
displaying.....	39
summary information, displaying.....	54
table	
clearing.....	29

BGP Monitoring Protocol

displaying	
statistics.....	30

Bidirectional Forwarding Detection *See* BFD

binding state of DHCP client

clearing.....	590
displaying.....	598

bootstrap routers, displaying.....

Border Gateway Protocol *See* BGP

braces, in configuration statements.....

brackets

angle, in syntax descriptions.....	xx
square, in configuration statements.....	xxi

bridge domain

Layer 2, displaying.....	729
--------------------------	-----

C

CAC

displaying for LSPs.....	667
call admission control <i>See</i> CAC	

CCC

connections, displaying.....	650
circuit cross-connect See CCC	
clear (ospf ospf3) database command.....	315
clear (ospf ospf3) database-protection command.....	318
clear (ospf ospf3) io-statistics command.....	319
clear (ospf ospf3) neighbor command.....	320
clear (ospf ospf3) statistics command.....	323
clear ancp neighbor command.....	4
clear bfd adaptation command.....	16
clear bfd session command.....	17
clear bgp damping command.....	26
clear bgp neighbor command.....	27
clear bgp table command.....	29
clear bridge mac-table command.....	726
clear dhcp relay binding command.....	590
clear dhcp relay statistics command.....	593
clear error bpdu command.....	727
clear error mac-rewrite command.....	728
clear esis adjacency command.....	62
clear esis statistics command.....	63
clear firewall command.....	578
clear helper statistics command.....	596
clear igmp membership command.....	75
clear igmp snooping membership command.....	79
clear igmp snooping statistics command.....	80
clear igmp statistics command.....	81
clear ipv6 neighbors command.....	230
clear ipv6 router-advertisement command.....	231
clear isis adjacency command.....	239
clear isis database command.....	241
clear isis overload command.....	243
clear isis statistics command.....	245
clear ldp neighbor command.....	619
clear ldp session command.....	620
clear ldp statistics command.....	621
clear lldp neighbor command.....	286
clear lldp statistics command.....	287
clear mld membership command.....	83
clear mld statistics command.....	84
clear msdp cache command.....	85
clear msdp statistics command.....	86
clear multicast bandwidth-admission command.....	87
clear multicast scope command.....	89
clear multicast sessions command.....	90
clear multicast snooping statistics command.....	91
clear multicast statistics command.....	92

clear ospf overload command.....	322
clear pgm negative-acknowledgments command.....	93
clear pgm source-path-messages command.....	94
clear pgm statistics command.....	95
clear pim join command.....	96
clear pim join-distribution command.....	97
clear pim register command.....	99
clear pim statistics command.....	100
clear rip general-statistics command.....	558
clear rip statistics command.....	559
clear ripng general-statistics command.....	568
clear ripng statistics command.....	569
clear rsvp session command.....	696
clear rsvp statistics command.....	698
clear spanning-tree protocol-migration command.....	752
clear spanning-tree statistics command.....	753
clear vlpls mac-address command.....	773
clear vlpls mac-table command.....	774
comments, in configuration statements.....	xxi
community ASN, displaying routes.....	415
community name, displaying routes.....	417
conditions routing policy.....	611
Constrained Shortest Path First See CSPF	
conventions text and syntax.....	xx
CSPF statistics, displaying.....	669
curly braces, in configuration statements.....	xxi
customer support.....	xxi
contacting JTAC.....	xxi

D

damping parameters, BGP clearing.....	26
displaying.....	58
damping routes, BGP displaying.....	419
DHCP relay binding clearing.....	590
relay binding state displaying.....	598
relay statistics clearing.....	593
displaying.....	602

-
- DHCP client
 - binding state
 - clearing.....590
 - displaying.....598
 - statistics
 - clearing.....593
 - DiffServ
 - classes, displaying for MPLS.....671
 - Distance Vector Multicast Routing Protocol *See* DVMRP
 - documentation
 - comments on.....xxi
 - DVMRP
 - groups, displaying.....181
 - interfaces, displaying.....103
 - neighbors, displaying.....105
 - prefixes, displaying.....107
 - prunes, displaying active.....109
 - dynamic overload bit, resetting for IS-IS.....243
 - dynamic tunnel database, displaying.....776
- E**
- End System-to-Intermediate System *See* ES-IS
 - ES-IS
 - adjacencies
 - clearing.....62
 - displaying.....64
 - interfaces, displaying.....66
 - statistics
 - clearing.....63
 - displaying.....68
 - export route information, displaying.....442
- F**
- FEC filters
 - displaying for LDP.....626
 - firewall
 - filter version
 - displaying.....582
 - statistics
 - displaying.....579
 - firewall filters
 - log information, displaying.....583
 - policed packets, displaying.....586
 - statistics
 - clearing.....578
 - displaying.....585
 - flooding
 - Layer 2 bridging, displaying.....731
 - font conventions.....xx
 - forwarding equivalence class *See* FEC
 - forwarding options
 - DHCP relay agent.....590, 593, 598, 602
 - UDP statistics
 - clearing.....596
 - displaying.....605
 - forwarding table
 - multicast information, displaying.....160
 - multicast snooping information,
 - displaying.....172
 - route entries, displaying.....461
- G**
- generalized MPLS *See* GMPLS
 - GMPLS
 - link-management information, displaying
 - all.....653
 - peers.....657
 - routing process.....659
 - statistics.....662
 - traffic-engineered links.....664
 - groups
 - BGP
 - general information, displaying.....31
 - traffic statistics, displaying.....37
 - DVMRP, displaying.....181
 - IGMP membership, displaying.....111
 - MLD
 - clearing.....83
 - displaying.....130
 - MPLS, displaying administrative.....666
 - PIM
 - general information, displaying.....195
 - usage information, displaying.....181
- H**
- hidden routes, displaying.....472
 - hostnames
 - IS-IS, displaying.....267
- I**
- icons defined, notice.....xix
 - IGMP
 - group membership, displaying.....111
 - interfaces, displaying.....115
 - PIM-to-IGMP message translation information,
 - displaying.....156
 - snooping (interface).....118

snoping (membership).....	121
snoping (statistics).....	124
statistics, displaying.....	127
interface learning information	
Layer 2, displaying.....	748
Intermediate System-to-Intermediate System <i>See</i>	
IS-IS	
Internet Group Management Protocol <i>See</i> IGMP	
invalid routes, displaying.....	491
IP IGMP snooping	
membership	
clearing.....	79
statistics	
clearing.....	80
IP multicast.....	71
announced sessions, displaying.....	170
bandwidth admission	
clearing.....	87
flow map information, displaying.....	148
forwarding table, displaying.....	160
interface information, displaying.....	150
network information, displaying.....	152
next-hop table, displaying.....	154
PIM-to-IGMP message translation information,	
displaying.....	156
PIM-to-MLD message translation information,	
displaying.....	158
RPF calculations, displaying.....	164
SAP announcements, displaying.....	226
scope, clearing.....	89
scoped information, displaying.....	168
sessions, clearing.....	90
statistics	
clearing.....	92
displaying.....	178
<i>See also</i> DVMRP, MDT, MLD, MSDP, PGM, PIM,	
AMT	
IP multicast snooping	
forwarding table, displaying.....	172
statistics	
clearing.....	91
displaying.....	175
IPv6	
neighbor cache information	
clearing.....	230
displaying.....	232
router advertisements	
clearing.....	231
displaying.....	234

IS-IS	
adjacency database entries, clearing.....	239
authentication, displaying.....	251
backup coverage	
displaying.....	253
backup MPLS LSPs.....	255
backup paths	
SPF calculations.....	257
dynamic overload bit, resetting.....	243
hostname database, displaying.....	267
interfaces, displaying.....	268
link-state database entries	
clearing.....	241
displaying.....	260
neighbors, displaying.....	247
routes, displaying.....	275
SPF calculations, displaying.....	278
traffic statistics	
clearing.....	245
displaying.....	283

J

join states, clearing PIM.....	96
join states, redistributing.....	97

L

Label Distribution Protocol <i>See</i> LDP	
label switched path, LSP.....	645
Layer 2 BPDU loop prevention	
clearing errors.....	727
Layer 2 bridging.....	725
bridge domain, displaying.....	729
flooding, displaying.....	731
interface learning information, displaying.....	748
learning information, displaying.....	744, 745
learning properties, displaying.....	746
MAC address table, clearing.....	726
MAC address table, displaying.....	738
statistics, displaying.....	741
Layer 2 circuits	
connections, displaying.....	779
redundant pseudowires.....	775
Layer 2 protocol tunneling	
clearing errors.....	728
interface information, displaying.....	750
Layer 2 switching.....	725

-
- Layer 2 VPNs
 - connections, displaying.....784
 - VPLS connections, displaying.....796
 - VPLS statistics, displaying.....814
 - Layer 3 VPNs
 - dynamic tunnel database, displaying.....776
 - PIM MDTs, displaying.....201
 - PIM, displaying.....205
 - LDP
 - database entries, displaying.....622
 - FEC filters, displaying.....626
 - interfaces, displaying.....627
 - LSPs, displaying.....631
 - neighbors
 - clearing connections.....619
 - displaying.....629
 - routes, displaying.....633
 - sessions
 - clearing.....620
 - displaying.....635
 - statistics
 - clearing.....621
 - displaying.....639
 - traffic statistics, displaying.....642
 - learning information
 - Layer 2, displaying.....744, 745
 - learning properties
 - Layer 2, displaying.....746
 - link-state paths *See* LSPs
 - LLDP
 - displaying.....288
 - local information, displaying.....290
 - neighbor
 - clearing.....286
 - neighbors, displaying.....292
 - remote global statistics, displaying.....296
 - statistics
 - clearing.....287
 - statistics, displaying.....298
 - LSPs
 - bandwidth allocation, adjusting.....649
 - CAC information, displaying.....667
 - clearing.....647
 - LDP, displaying.....631
 - MPLS, displaying.....674
 - M**
 - MAC address table
 - Layer 2, clearing address information.....726
 - Layer 2, displaying.....738
 - manuals
 - comments on.....xxi
 - martians, displaying.....491
 - MDT
 - displaying information.....201
 - MLD
 - group membership
 - clearing.....83
 - displaying.....130
 - interfaces, displaying.....134
 - PIM-to-MLD message translation information,
 - displaying.....158
 - statistics
 - clearing.....84
 - displaying.....137
 - MPLS.....617
 - administrative groups, displaying.....666
 - CCC connections, displaying.....650
 - CSPF statistics, displaying.....669
 - DiffServ classes, displaying.....671
 - interfaces, displaying.....673
 - labels, displaying routes.....487
 - link-management information, displaying
 - all.....653
 - peers.....657
 - routing process.....659
 - statistics.....662
 - traffic-engineered links.....664
 - LSPs, displaying.....684
 - static LSPs, displaying.....685
 - See also* LDP, LSPs, RSVP, traffic engineering
 - database
 - MSDP
 - cache entries, clearing.....85
 - general information, displaying.....140
 - message source information, displaying.....142
 - peer statistics
 - clearing.....86
 - displaying.....146
 - source-active cache, displaying.....144
 - MSTP
 - configuration
 - displaying.....764
 - multicast *See* IP multicast
 - multicast distribution trees *See* MDT

Multicast Listener Discovery	See MLD
Multicast Source Discovery Protocol	See MSDP
multicast virtual private network	See MVPN
multicast VPNs	
customer multicast routes, displaying	788
neighbors, displaying	793
routing instances, displaying	790
Multiprotocol Label Switching	See MPLS
MVPN	
displaying information	205
MVRP	
configuration	
show	302, 304, 307, 308
dynamic-vlan-memberships	
show	306
statistics	
show	310
N	
neighbor	
ANCP	4
LLDP	286
next hops	
multicast entries, displaying	154
resolution database, displaying	526
routes sent to, displaying	493
notice icons defined	xix

O

Open Shortest Path First	See OSPF
OSPF	
backup coverage	
displaying	325
backup MPLS LSPs	
displaying	327
backup paths	
SPF calculations	329
interfaces, displaying	354
link-state database entries, displaying	
version 2	336
version 3	344
neighbors	
clearing connections	320
displaying	363
overview	
displaying	369
routing table entries, displaying	373
SPF calculations, displaying	360

statistics, general	
clearing	323
displaying	378
statistics, I/O	
clearing	319
displaying	359
overload bit, resetting for IS-IS	243

P

parentheses, in syntax descriptions	xxi
PGM	
negative acknowledgments	
clearing	93
displaying	184
source path messages	
clearing	94
displaying	186
statistics	
clearing	95
displaying	187
PIM	
bootstrap routers, displaying	190
groups	
general information, displaying	195
usage information, displaying	181
interfaces	
displaying	192
join states, clearing	96
MDTs, displaying	201
MVPN, displaying	205
neighbors, displaying	206
PIM-to-IGMP message translation information, displaying	156
PIM-to-MLD message translation information, displaying	158
prune states, clearing	96
redistributing join states	97
register	
clearing	99
RPF, displaying source state	215
RPs	
displaying	210
statistics	
clearing	100
displaying	217
policers, displaying	586
Pragmatic General Multicast	See PGM
Protocol Independent Multicast	See PIM
prune states, clearing PIM	96

prunes, DVMRP, displaying.....109
 pseudowires
 redundant switchover.....775

R

redundant pseudowires, switchover.....775
 regular expressions
 AS paths, displaying matching routes.....406
 IP multicast scope
 clearing.....89
 IP multicast sessions
 clearing.....90
 displaying.....170
 LSPs, clearing.....647
 target communities, displaying.....444
 rendezvous points *See* RPs
 replication
 of BGP configuration.....52
 request l2circuit-switchover command.....775
 request mpls lsp adjust-autobandwidth
 command.....649
 request pim multicast-tunnel rebalance
 command.....102
 Resource Reservation Protocol *See* RSVP
 reverse path forwarding *See* RPF
 RIP
 general statistics
 clearing.....558
 displaying.....560
 neighbors
 displaying.....561
 statistics
 clearing.....559
 displaying.....563
 RIPng
 general statistics
 clearing.....568
 displaying.....570
 neighbors
 displaying.....571
 statistics
 clearing.....569
 displaying.....573
 route advertisements, displaying.....400
 route, displaying
 next-hop.....493

router advertisements
 IPv6
 clearing.....231
 displaying.....234
 routes, displaying
 active.....391
 active path.....395
 advertising protocol.....400
 all.....404
 AS paths
 distribution of.....384
 domain information.....388
 regular expressions, matching.....406
 summary of.....390
 best.....408
 brief information.....412
 CCC.....414
 community ASN.....415
 community name.....417
 damping, BGP.....419
 detailed information.....424
 extensive information.....446
 flow validation.....459
 hidden.....472
 in a prefix range.....515
 in a specific routing table.....545
 in the forwarding table.....461
 in the LDP internal topology table.....633
 inactive path.....475
 inactive prefix.....478
 instances.....480
 learned from a specific address.....537
 learned from a specific protocol.....506
 learned from snooping.....529
 LSP.....489
 martian.....491
 matching the specified address.....439
 MPLS labels.....487
 next-hop resolution.....526
 not associated with a community.....499
 policy-based route export.....442
 received through a neighbor.....519
 sent to a specific interface.....502
 summary statistics.....543
 terse.....553

Routing Information Protocol *See* RIP

Routing Information Protocol next generation *See*
 RIPng

routing policies	
displaying.....	608
testing the configuration for.....	613
RPF	
calculations, displaying.....	164
PIM source state, displaying.....	215
RPs	
displaying.....	210
RSVP	
interfaces, displaying.....	699
neighbors, displaying.....	704
sessions	
clearing.....	696
displaying.....	709
statistics	
clearing.....	698
displaying.....	717
version, displaying.....	721

S

SAP session announcements, displaying.....	226
Session Announcement Protocol	See SAP
shortest path first	See SPF
show (ospf ospf3) backup coverage	
command.....	325
show (ospf ospf3) backup lsp.....	327
show (ospf ospf3) backup spf.....	329
show (ospf ospf3) interface command.....	354
show (ospf ospf3) io-statistics command.....	359
show (ospf ospf3) log command.....	360
show (ospf ospf3) neighbor command.....	363
show (ospf ospf3) overview command.....	369
show (ospf ospf3) route command.....	373
show (ospf ospf3) statistics command.....	378
show ancp cos command.....	5
show ancp neighbor command.....	8
show ancp subscriber command.....	10
show as-path command.....	384
show as-path domain command.....	388
show as-path summary command.....	390
show bfd session command.....	18
show bgp bmp command.....	30
show bgp group command.....	31
show bgp group traffic-statistics command.....	37
show bgp neighbor command.....	39
show bgp replication command.....	52
show bgp summary command.....	54
show bridge domain command.....	729
show bridge flood command.....	731

show bridge mac-table command.....	738
show bridge statistics command.....	741
show command.....	302, 304, 307, 308
show connections command.....	650
show dhcp relay binding command.....	598
show dhcp relay statistics command.....	602
show dvmp interfaces command.....	103
show dvmp neighbors command.....	105
show dvmp prefix command.....	107
show dvmp prunes command.....	109
show dynamic-tunnels database command.....	776
show esis adjacency command.....	64
show esis interface command.....	66
show esis statistics command.....	68
show firewall command.....	579
show firewall filter version command.....	582
show firewall log command.....	583
show firewall prefix-action-stats command.....	585
show helper statistics command.....	605
show igmp group command.....	111
show igmp interface command.....	115
show igmp snooping interface command.....	118
show igmp snooping membership command.....	121
show igmp snooping statistics command.....	124
show igmp statistics command.....	127
show ipv6 neighbors command.....	232
show ipv6 router-advertisement command.....	234
show isis adjacency command.....	247
show isis authentication command.....	251
show isis backup coverage.....	253
show isis backup spf results.....	257
show isis database command.....	260
show isis hostname command.....	267
show isis interface command.....	268
show isis overview command.....	272
show isis route command.....	275
show isis spf command.....	278
show isis statistics command.....	283
show isis-backup label-switched-path	
command.....	255
show l2-learning global-information	
command.....	744
show l2-learning global-mac-count	
command.....	745
show l2-learning instance command.....	746
show l2-learning interface command.....	748
show l2circuit connections command.....	779
show l2vpn connections command.....	784
show ldp database command.....	622

show ldp fec-filters command.....	626
show ldp interface command.....	627
show ldp neighbor command.....	629
show ldp path command.....	631
show ldp route command.....	633
show ldp session command.....	635
show ldp statistics command.....	639
show ldp traffic-statistics command.....	642
show link-management command.....	653
show link-management peer command.....	657
show link-management routing command.....	659
show link-management statistics command.....	662
show link-management te-link command.....	664
show lldp command.....	288
show lldp local-information command.....	290
show lldp neighbors command.....	292
show lldp remote-global-statistics command.....	296
show lldp statistics command.....	298
show mac-rewrite interface command.....	750
show mld group command.....	130
show mld interface command.....	134
show mld statistics command.....	137
show mpls admin-groups command.....	666
show mpls call-admission-control command.....	667
show mpls cspf command.....	669
show mpls diffserv-te command.....	671
show mpls interface command.....	673
show mpls lsp command.....	674
show mpls path command.....	684
show mpls static-lsp command.....	685
show msdp command.....	140
show msdp source command.....	142
show msdp source-active command.....	144
show msdp statistics command.....	146
show multicast flow-map command.....	148
show multicast interface command.....	150
show multicast mrinfo command.....	152
show multicast next-hops command.....	154
show multicast pim-to-igmp-proxy command.....	156
show multicast pim-to-mld-proxy command.....	158
show multicast route command.....	160
show multicast rpf command.....	164
show multicast scope command.....	168
show multicast sessions command.....	170
show multicast snooping route command.....	172
show multicast snooping statistics command.....	175
show multicast statistics command.....	178
show multicast usage command.....	181
show mvpn c-multicast command.....	788
show mvpn instance command.....	790
show mvpn neighbor command.....	793
show mvrp statistics command.....	310
show ospf database command.....	336
show ospf3 database command.....	344
show pgm negative-acknowledgments command.....	184
show pgm source-path-messages command.....	186
show pgm statistics command.....	187
show pim bootstrap command.....	190
show pim interfaces command.....	192
show pim join command.....	195
show pim mdt command.....	201, 205
show pim neighbors command.....	206
show pim rps command.....	210
show pim source command.....	215
show pim statistics command.....	217
show policer command.....	586
show policy command.....	608
show policy conditions command.....	611
show policy damping command.....	58
show rip general-statistics command.....	560
show rip neighbor command.....	561
show rip statistics command.....	563
show ripng general-statistics command.....	570
show ripng neighbor command.....	571
show ripng statistics command.....	573
show route active-path command.....	395
show route advertising-protocol command.....	400
show route all command.....	404
show route aspath-regex command.....	406
show route best command.....	408
show route brief command.....	412
show route ccc command.....	414
show route command.....	391
show route community command.....	415
show route community-name command.....	417
show route damping command.....	419
show route detail command.....	424
show route exact command.....	439
show route export command.....	442
show route export vrf-target command.....	444
show route extensive command.....	446
show route flow validation command.....	459
show route forwarding-table command.....	461
show route hidden command.....	472
show route inactive-path command.....	475

show route inactive-prefix command.....	478
show route instance command.....	480
show route label command.....	487
show route label-switched-path command.....	489
show route martians command.....	491
show route next-hop command.....	493
show route no-community command.....	499
show route output command.....	502
show route protocol command.....	506
show route range command.....	515
show route receive-protocol command.....	519
show route resolution command.....	526
show route snooping command.....	529
show route source-gateway command.....	537
show route summary command.....	543
show route table command.....	545
show route terse command.....	553
show rsvp interface command.....	699
show rsvp neighbor command.....	704
show rsvp session command.....	709
show rsvp statistics command.....	717
show rsvp version command.....	721
show sap listen command.....	226
show spanning-tree bridge command.....	754
show spanning-tree interface command.....	759
show spanning-tree mstp configuration command.....	764
show spanning-tree statistics command.....	766
show ted database command.....	688
show ted link command.....	692
show ted protocol command.....	694
show vpls connections command.....	796
show vpls flood event-queue command.....	804
show vpls flood instance command.....	806
show vpls flood route command.....	808
show vpls mac-table command.....	810
show vpls statistics command.....	814
snooping (interface)	
IGMP.....	118
snooping (membership)	
IGMP.....	121
snooping (statistics)	
IGMP.....	124
snooping routes, displaying.....	529
source gateway addresses, displaying.....	537
Spanning Tree Protocol See STP	
SPF calculations, displaying.....	360
static LSPs	
MPLS, displaying.....	685

statistics	
Layer 2 bridging, displaying.....	741
LLDP.....	287
STP	
bridge	
displaying.....	754
interface	
displaying.....	759
protocol	
clearing.....	752
statistics	
clearing.....	753
displaying.....	766
support, technical See technical support	
syntax conventions.....	xx

T

technical support	
contacting JTAC.....	xxi
TED See traffic engineering database	
test msdp command.....	227
test policy command.....	613
traffic engineering database	
database entries, displaying.....	688
link information, displaying.....	692
protocols learned from, displaying.....	694

U

UDP, statistics	
clearing.....	596
displaying.....	605
User Datagram Protocol See UDP	

V

version	
RSVP, displaying.....	721
virtual private LAN service See VPLS	
VPLS	
connections, displaying.....	796
statistics, displaying.....	814
VPN routing and forwarding See VRF	
VPNs See Layer 2 VPNs, Layer 3 VPNs	
VRF	
route export, displaying.....	444

Index of Statements and Commands

C

clear (ospf ospf3) database command.....	315
clear (ospf ospf3) database-protection command.....	318
clear (ospf ospf3) io-statistics command.....	319
clear (ospf ospf3) neighbor command.....	320
clear (ospf ospf3) statistics command.....	323
clear ancp neighbor command.....	4
clear bfd adaptation command.....	16
clear bfd session command.....	17
clear bgp damping command.....	26
clear bgp neighbor command.....	27
clear bgp table command.....	29
clear bridge mac-table command.....	726
clear dhcp relay binding command.....	590
clear dhcp relay statistics command.....	593
clear error bpdu command.....	727
clear error mac-rewrite command.....	728
clear esis adjacency command.....	62
clear esis statistics command.....	63
clear firewall command.....	578
clear helper statistics command.....	596
clear igmp membership command.....	75
clear igmp snooping membership command.....	79
clear igmp snooping statistics command.....	80
clear igmp statistics command.....	81
clear ipv6 neighbors command.....	230
clear ipv6 router-advertisement command.....	231
clear isis adjacency command.....	239
clear isis database command.....	241
clear isis overload command.....	243
clear isis statistics command.....	245
clear ldp neighbor command.....	619
clear ldp session command.....	620
clear ldp statistics command.....	621
clear lldp neighbor command.....	286
clear lldp statistics command.....	287
clear mld membership command.....	83
clear mld statistics command.....	84
clear msdp cache command.....	85

clear msdp statistics command.....	86
clear multicast bandwidth-admission command.....	87
clear multicast scope command.....	89
clear multicast sessions command.....	90
clear multicast snooping statistics command.....	91
clear multicast statistics command.....	92
clear ospf overload command.....	322
clear pgm negative-acknowledgments command.....	93
clear pgm source-path-messages command.....	94
clear pgm statistics command.....	95
clear pim join command.....	96
clear pim join-distribution command.....	97
clear pim register command.....	99
clear pim statistics command.....	100
clear rip general-statistics command.....	558
clear rip statistics command.....	559
clear ripng general-statistics command.....	568
clear ripng statistics command.....	569
clear rsvp session command.....	696
clear rsvp statistics command.....	698
clear spanning-tree protocol-migration command.....	752
clear spanning-tree statistics command.....	753
clear vlps mac-address command.....	773
clear vlps mac-table command.....	774

R

request l2circuit-switchover command.....	775
request mpls lsp adjust-autobandwidth command.....	649
request pim multicast-tunnel rebalance command.....	102

S

show (ospf ospf3) backup coverage command.....	325
show (ospf ospf3) backup lsp.....	327
show (ospf ospf3) backup spf.....	329
show (ospf ospf3) interface command.....	354

show (ospf ospf3) io-statistics command.....	359	show isis authentication command.....	251
show (ospf ospf3) log command.....	360	show isis backup coverage.....	253
show (ospf ospf3) neighbor command.....	363	show isis backup spf results.....	257
show (ospf ospf3) overview command.....	369	show isis database command.....	260
show (ospf ospf3) route command.....	373	show isis hostname command.....	267
show (ospf ospf3) statistics command.....	378	show isis interface command.....	268
show ancp cos command.....	5	show isis overview command.....	272
show ancp neighbor command.....	8	show isis route command.....	275
show ancp subscriber command.....	10	show isis spf command.....	278
show as-path command.....	384	show isis statistics command.....	283
show as-path domain command.....	388	show isis-backup label-switched-path command.....	255
show as-path summary command.....	390	show l2-learning global-information command.....	744
show bfd session command.....	18	show l2-learning global-mac-count command.....	745
show bgp bmp command.....	30	show l2-learning instance command.....	746
show bgp group command.....	31	show l2-learning interface command.....	748
show bgp group traffic-statistics command.....	37	show l2circuit connections command.....	779
show bgp neighbor command.....	39	show l2vpn connections command.....	784
show bgp replication command.....	52	show ldp database command.....	622
show bgp summary command.....	54	show ldp fec-filters command.....	626
show bridge domain command.....	729	show ldp interface command.....	627
show bridge flood command.....	731	show ldp neighbor command.....	629
show bridge mac-table command.....	738	show ldp path command.....	631
show bridge statistics command.....	741	show ldp route command.....	633
show command.....	302, 304, 307, 308	show ldp session command.....	635
show connections command.....	650	show ldp statistics command.....	639
show dhcp relay binding command.....	598	show ldp traffic-statistics command.....	642
show dhcp relay statistics command.....	602	show link-management command.....	653
show dvmp interfaces command.....	103	show link-management peer command.....	657
show dvmp neighbors command.....	105	show link-management routing command.....	659
show dvmp prefix command.....	107	show link-management statistics command.....	662
show dvmp prunes command.....	109	show link-management te-link command.....	664
show dynamic-tunnels database command.....	776	show lldp command.....	288
show esis adjacency command.....	64	show lldp local-information command.....	290
show esis interface command.....	66	show lldp neighbors command.....	292
show esis statistics command.....	68	show lldp remote-global-statistics command.....	296
show firewall command.....	579	show lldp statistics command.....	298
show firewall filter version command.....	582	show mac-rewrite interface command.....	750
show firewall log command.....	583	show mld group command.....	130
show firewall prefix-action-stats command.....	585	show mld interface command.....	134
show helper statistics command.....	605	show mld statistics command.....	137
show igmp group command.....	111	show mpls admin-groups command.....	666
show igmp interface command.....	115	show mpls call-admission-control command.....	667
show igmp snooping interface command.....	118	show mpls cspf command.....	669
show igmp snooping membership command.....	121	show mpls diffserv-te command.....	671
show igmp snooping statistics command.....	124	show mpls interface command.....	673
show igmp statistics command.....	127		
show ipv6 neighbors command.....	232		
show ipv6 router-advertisement command.....	234		
show isis adjacency command.....	247		

show mpls lsp command.....	674	show ripng statistics command.....	573
show mpls path command.....	684	show route active-path command.....	395
show mpls static-lsp command.....	685	show route advertising-protocol command.....	400
show msdp command.....	140	show route all command.....	404
show msdp source command.....	142	show route aspath-regex command.....	406
show msdp source-active command.....	144	show route best command.....	408
show msdp statistics command.....	146	show route brief command.....	412
show multicast flow-map command.....	148	show route ccc command.....	414
show multicast interface command.....	150	show route command.....	391
show multicast minfo command.....	152	show route community command.....	415
show multicast next-hops command.....	154	show route community-name command.....	417
show multicast pim-to-igmp-proxy command.....	156	show route damping command.....	419
show multicast pim-to-mld-proxy command.....	158	show route detail command.....	424
show multicast route command.....	160	show route exact command.....	439
show multicast rpf command.....	164	show route export command.....	442
show multicast scope command.....	168	show route export vrf-target command.....	444
show multicast sessions command.....	170	show route extensive command.....	446
show multicast snooping route command.....	172	show route flow validation command.....	459
show multicast snooping statistics command.....	175	show route forwarding-table command.....	461
show multicast statistics command.....	178	show route hidden command.....	472
show multicast usage command.....	181	show route inactive-path command.....	475
show mvpn c-multicast command.....	788	show route inactive-prefix command.....	478
show mvpn instance command.....	790	show route instance command.....	480
show mvpn neighbor command.....	793	show route label command.....	487
show mvrp statistics command.....	310	show route label-switched-path command.....	489
show ospf database command.....	336	show route martians command.....	491
show ospf3 database command.....	344	show route next-hop command.....	493
show pgm negative-acknowledgments command.....	184	show route no-community command.....	499
show pgm source-path-messages command.....	186	show route output command.....	502
show pgm statistics command.....	187	show route protocol command.....	506
show pim bootstrap command.....	190	show route range command.....	515
show pim interfaces command.....	192	show route receive-protocol command.....	519
show pim join command.....	195	show route resolution command.....	526
show pim mdt command.....	201, 205	show route snooping command.....	529
show pim neighbors command.....	206	show route source-gateway command.....	537
show pim rps command.....	210	show route summary command.....	543
show pim source command.....	215	show route table command.....	545
show pim statistics command.....	217	show route terse command.....	553
show policer command.....	586	show rsvp interface command.....	699
show policy command.....	608	show rsvp neighbor command.....	704
show policy conditions command.....	611	show rsvp session command.....	709
show policy damping command.....	58	show rsvp statistics command.....	717
show rip general-statistics command.....	560	show rsvp version command.....	721
show rip neighbor command.....	561	show sap listen command.....	226
show rip statistics command.....	563	show spanning-tree bridge command.....	754
show ripng general-statistics command.....	570	show spanning-tree interface command.....	759
show ripng neighbor command.....	571	show spanning-tree mstp configuration command.....	764
		show spanning-tree statistics command.....	766

show ted database command.....	688
show ted link command.....	692
show ted protocol command.....	694
show vpls connections command.....	796
show vpls flood event-queue command.....	804
show vpls flood instance command.....	806
show vpls flood route command.....	808
show vpls mac-table command.....	810
show vpls statistics command.....	814

T

test msdp command.....	227
test policy command.....	613